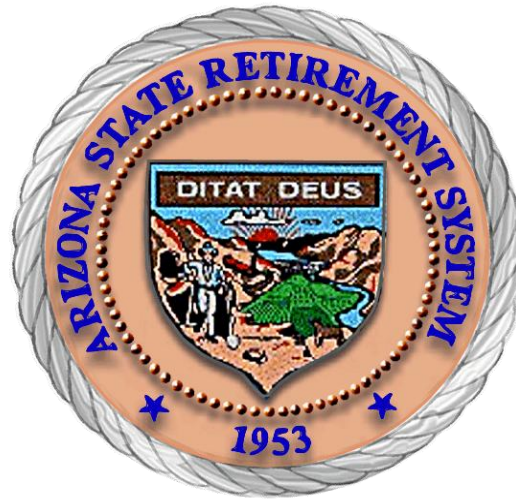


Arizona State Retirement System Board



U.S. Fixed Income Asset Class

Gary R. Dokes, Chief Investment Officer

Brian Luedtke, Fixed Income Portfolio Manager

Terry A. Dennison, Worldwide Partner, Mercer Investment Consulting

August 15, 2008

Presentation Topics

- **Fixed Income Market Environment**
- **U.S. Fixed Income Asset Class Review (Aggregate)**
 - Asset Class Snapshot
 - Mandates Overview
 - Quantitative:
 - Risk/Return Bubble Chart
 - Performance (Returns-Based)
 - Positions (Holdings-Based)
 - Mercer Manager(s) Ratings and Review

APPENDIX

- U.S. Fixed Income Manager Reviews (Individual)**
 - Qualitative Factors: People, Philosophy, Process
 - Quantitative: Performance and Positions

Fixed Income Market Environment

10 Year Treasury Yield

July 1, 2000 – July 28, 2008

Flight-to-quality was the theme for fiscal year 2008. As the subprime collapse led to massive balance sheet deleveraging, investors sought refuge in the safety of Treasury securities.

In response to growing concerns over the health of the global financial system, the Federal Reserve lowered the target Fed Funds rate from 5.25% to 2.00% over the course of FY2008.

Following the coordinated buy-out of Bear Stearns in March 2008, the market exhibited new-found risk appetite. However, concerns about commodity prices, inflation and the health of the consumer contributed to further volatility.



Mortgage Spreads*

July 1, 2000 – July 30, 2008

Mortgage spreads experienced unprecedented volatility throughout fiscal year 2008.

The combination of subprime uncertainty and balance sheet deleveraging pushed mortgage spreads to 20-year wides in March 2008.

Aggressive liquidity policies by the Federal Reserve and the Treasury temporarily eased the MBS imbalance. Concerns surrounding the viability of the GSE's (FNMA/FHLMC) led to further spread volatility.



* Lehman U.S MBS Index Average OAS

Credit Spreads*

July 1, 2000 – July 30, 2008

Corporate bond spreads widened dramatically as credit risk was re-priced in the market.

Credit spreads surpassed the wide levels established during the last credit downturn in 2002-2003.

Corporate bond spreads highlight the dislocation in the credit markets. Spreads are wider today than in 2002, yet current default rates are a fraction of what was observed during the last credit cycle.



* Lehman U.S. Corporate Investment Grade Index Average OAS

Spread widening has significantly impacted all sectors

Lehman Brothers Fixed Income indices relative to Treasuries (excess return)
1997–2008

	Agencies	MBS	ABS	CMBS Inv. Grade	U.S. Credit	144As Inv. Grade	Eurodollar	U.S. High Yield	EMD
Quality Ranking	High	High	High	High	Medium	Medium	Medium	Low	Low
1998	-46	-86	-8	-248	-220	-526	-72	-778	-1617
1999	41	113	136	312	174	339	85	479	2,248
2000	-10	-69	40	-22	-417	-446	-107	-1825	167
2001	69	-69	128	119	254	252	155	-208	-480
2002	96	173	-16	210	-187	-440	-8	-1329	23
2003	27	11	181	201	527	669	291	2,642	2,465
2004	78	142	142	118	159	232	126	800	823
2005	17	-37	32	15	-85	147	-24	47	959
2006	76	122	87	137	119	149	101	843	702
2007	-56	-185	-634	-435	-464	-582	-280	-777	-457
YTD June '08	-62	-36	-508	-505	-283	-391	-189	-383	-249

Source: Lehman Brothers

The above graph is for illustrative purposes only

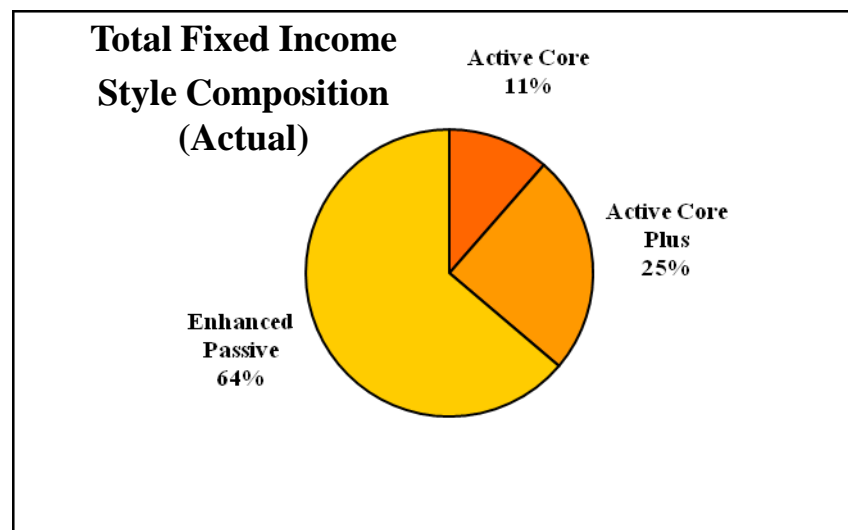
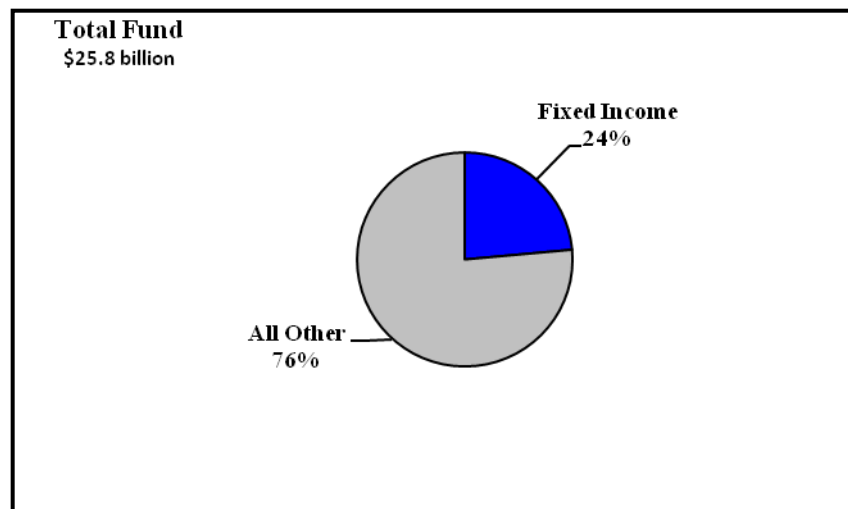
Courtesy of JP Morgan Asset Management

ASRS Fixed Income Asset Class (Aggregate)

ASRS Fixed Income Asset Class

June 30, 2008

- Market Value: \$6.1bb
- Passive Percent: 56.7%*
 - Target 55% 20%
- Portfolios:
 - 2 Enhanced Passive
 - 4 Active
- Average Fee: 7 bps



*Includes GTAA at assumed benchmark allocation.

ASRS Fixed Income Managers

Mandates Overview

June 30, 2008*

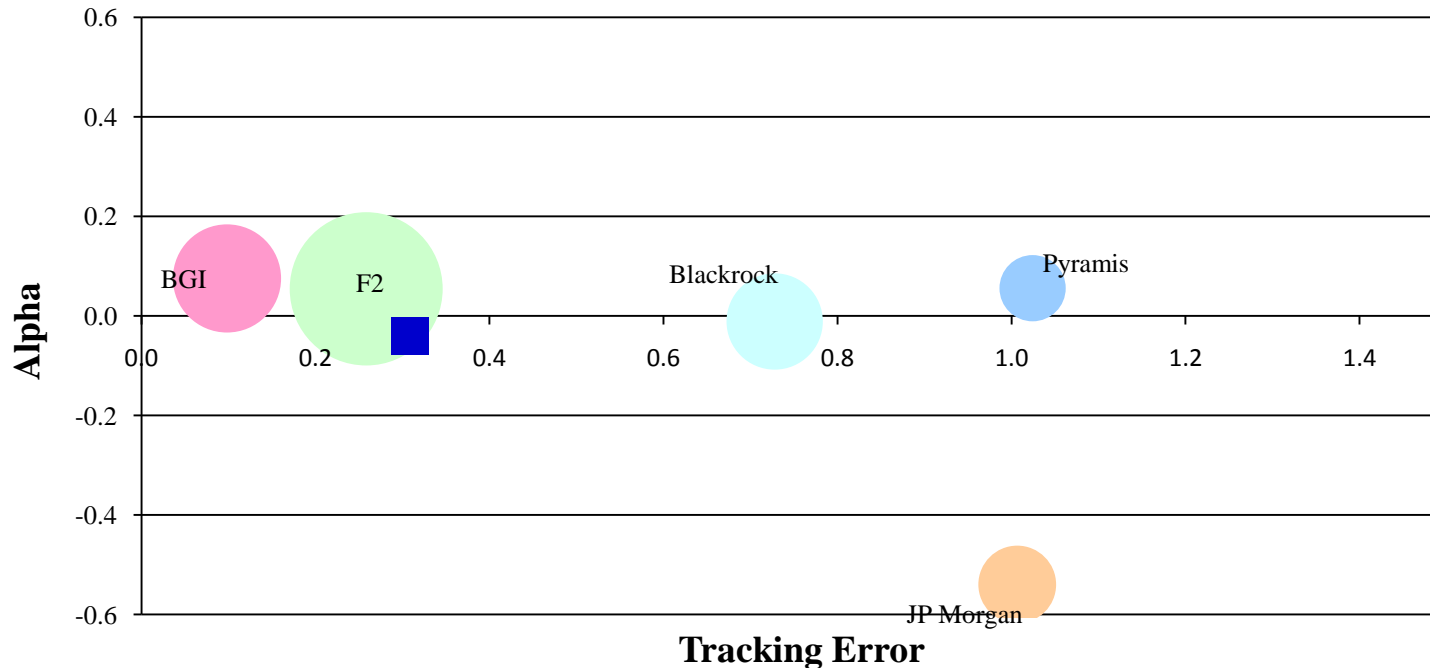
Manager	Style	Benchmark	Inception	Expected Alpha (bp)	Fees (bp)	Portfolio Assets (\$mil)*	Strategy Assets (\$mil)*
Active							
BlackRock	Core Plus	Leh Agg	11/30/1998	80	16	\$1,022	\$29,700
Pyramis	Core Plus	Leh Agg	12/31/2003	100	19	\$487	\$8,200
JP Morgan	Core	Leh Agg	06/30/1987	60	14	\$669	\$9,174
JP Morgan ^	Intermediate	Leh Intermediate Agg	11/30/2007	50	14	\$26	\$17,132
Passive							
F2 (Enhanced)	Core	Leh Agg	09/30/2000	10	1	\$2,592	N/A
BGI (Enhanced)	Core	Leh Agg	09/30/2004	10	5	\$1,291	\$48,065

^ Included in System Asset Allocation as a surrogate for Private Equity which is in the Plan/HBS Asset Allocation.

Risk/Return Bubble Chart

ASRS Fixed Income Manager/Asset Class

For the 5-Year Period Ending June 30, 2008



	Manager	Portfolio Size	Inception	Alpha	Tracking Error	Information Ratio
	Blackrock	1,022.6	11/30/1998	-0.01	0.73	-0.02
	Pyramis*	486.6	12/31/2003	0.06	1.02	0.05
	JP Morgan	668.7	6/30/1987	-0.54	1.01	-0.52
	F2	2,592.0	9/30/2000	0.05	0.26	0.20
	BGI*	1,290.9	9/30/2004	0.08	0.10	0.75
	Asset Class	\$ 6,087.1	7/1/1975	-0.04	0.29	-0.12

Alpha Net of Fees

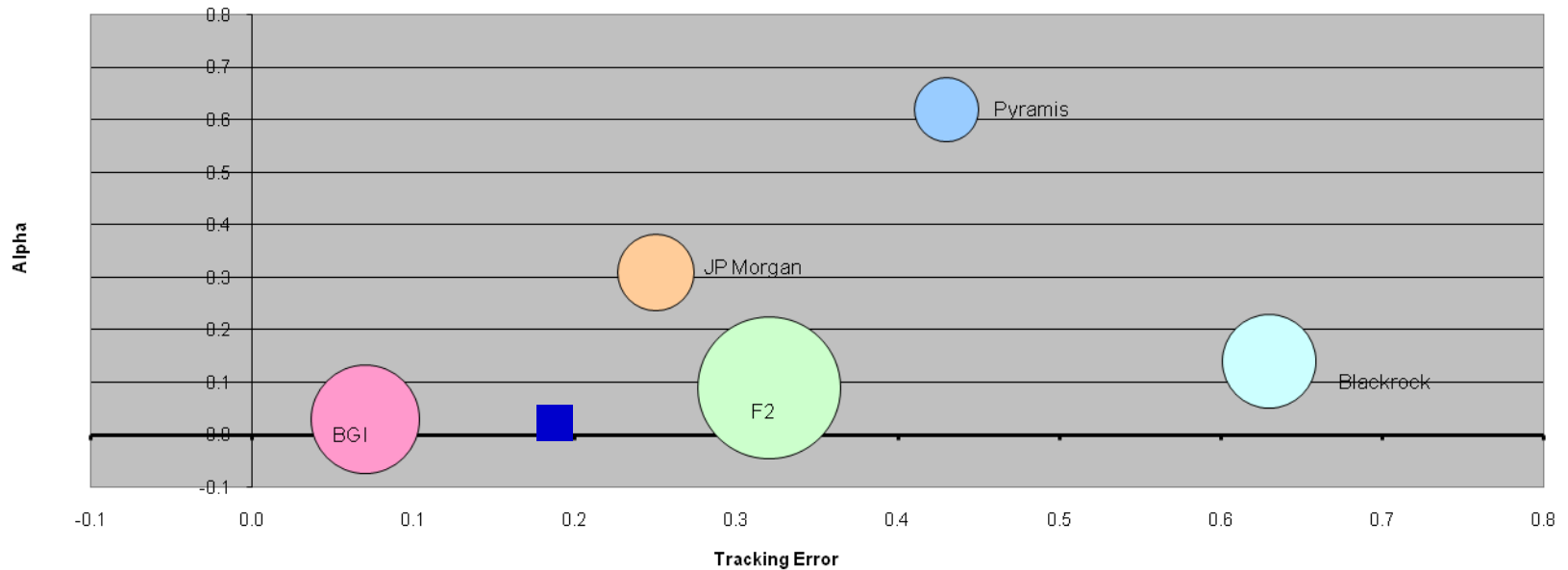
Excludes JPMorgan Int Agg strategy given short performance history

*Pyramis and BGI Risk/Return Calculations are inception to date

Risk/Return Bubble Chart

ASRS Fixed Income Manager/Asset Class

For the 5-Year Period Ending June 30, 2007



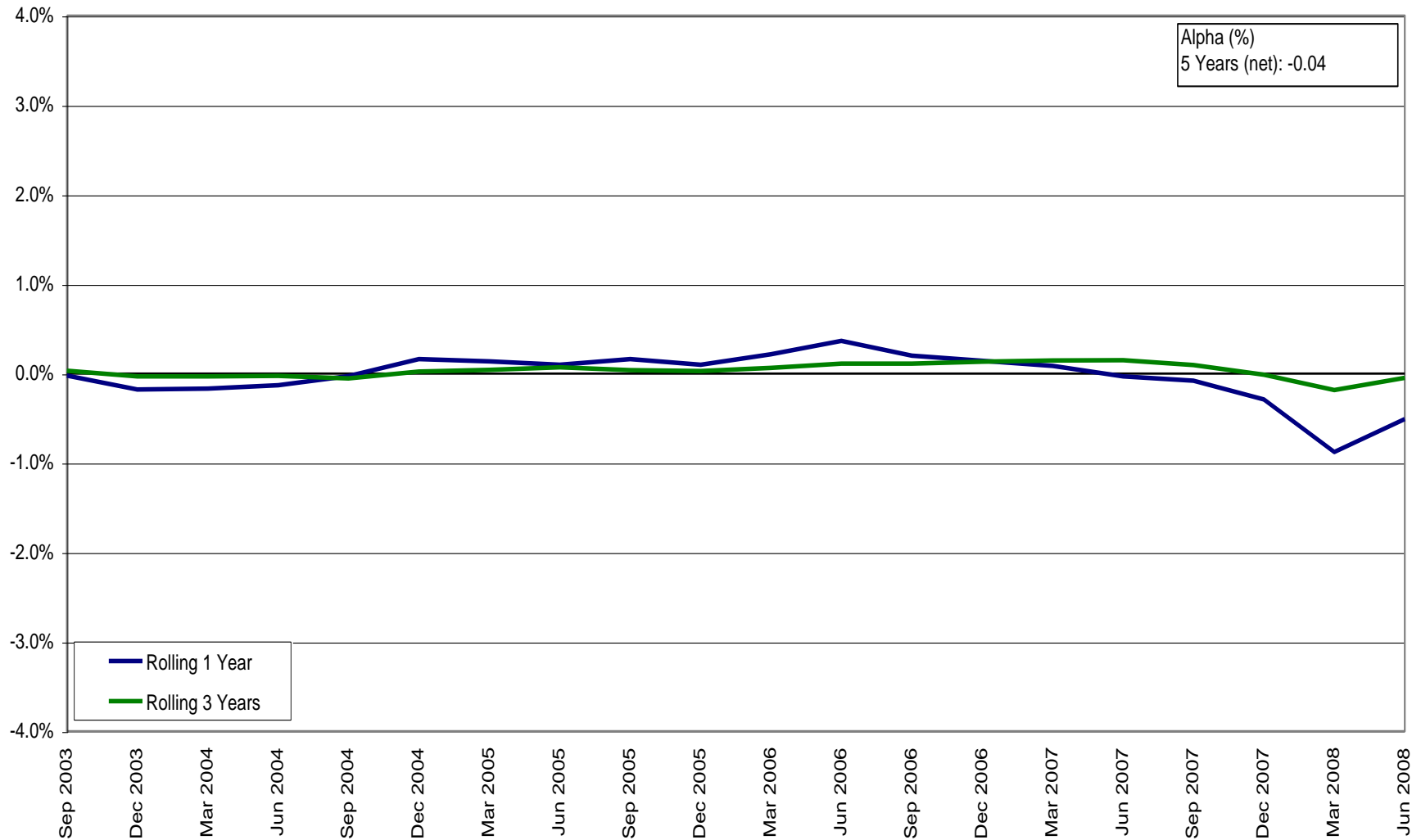
	Manager	Portfolio Size	Inception	Alpha	Tracking Error	Information Ratio
	Blackrock	955.2	11/30/1998	0.14	0.63	0.22
	Pyramis*	461.5	12/31/2003	0.62	0.43	1.44
	JP Morgan	645.5	6/30/1987	0.31	0.25	1.23
	F2	2,231.7	9/30/2000	0.09	0.32	0.26
	BGI	1,270.9	9/30/2004	0.03	0.07	0.40
	Asset Class	\$ 5,568.4	7/1/1975	0.12	0.17	0.68

Alpha is Net of Fees

*Pyramis Risk/Return Calculations for 3.5 years (Inception to Date)

As presented at the Aug. 18, 2007 Board Meeting

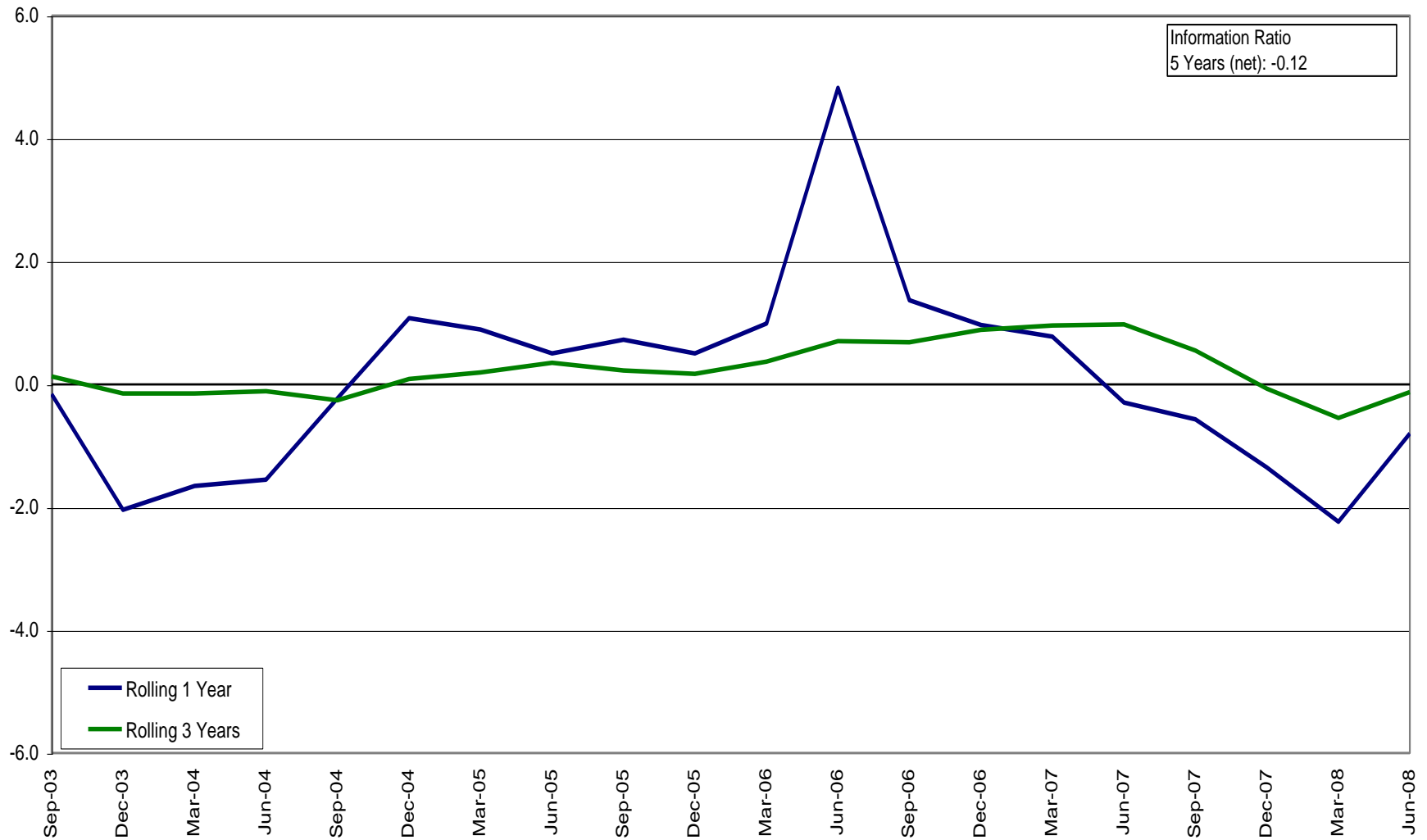
Performance: Alpha
ASRS Fixed Income Asset Class
For the 5-Year Period Ending June 30, 2008



Calculated quarterly Inception date 7/1/1975

Performance: Information Ratio ASRS Fixed Income Asset Class

For the 5-Year Period Ending June 30, 2008

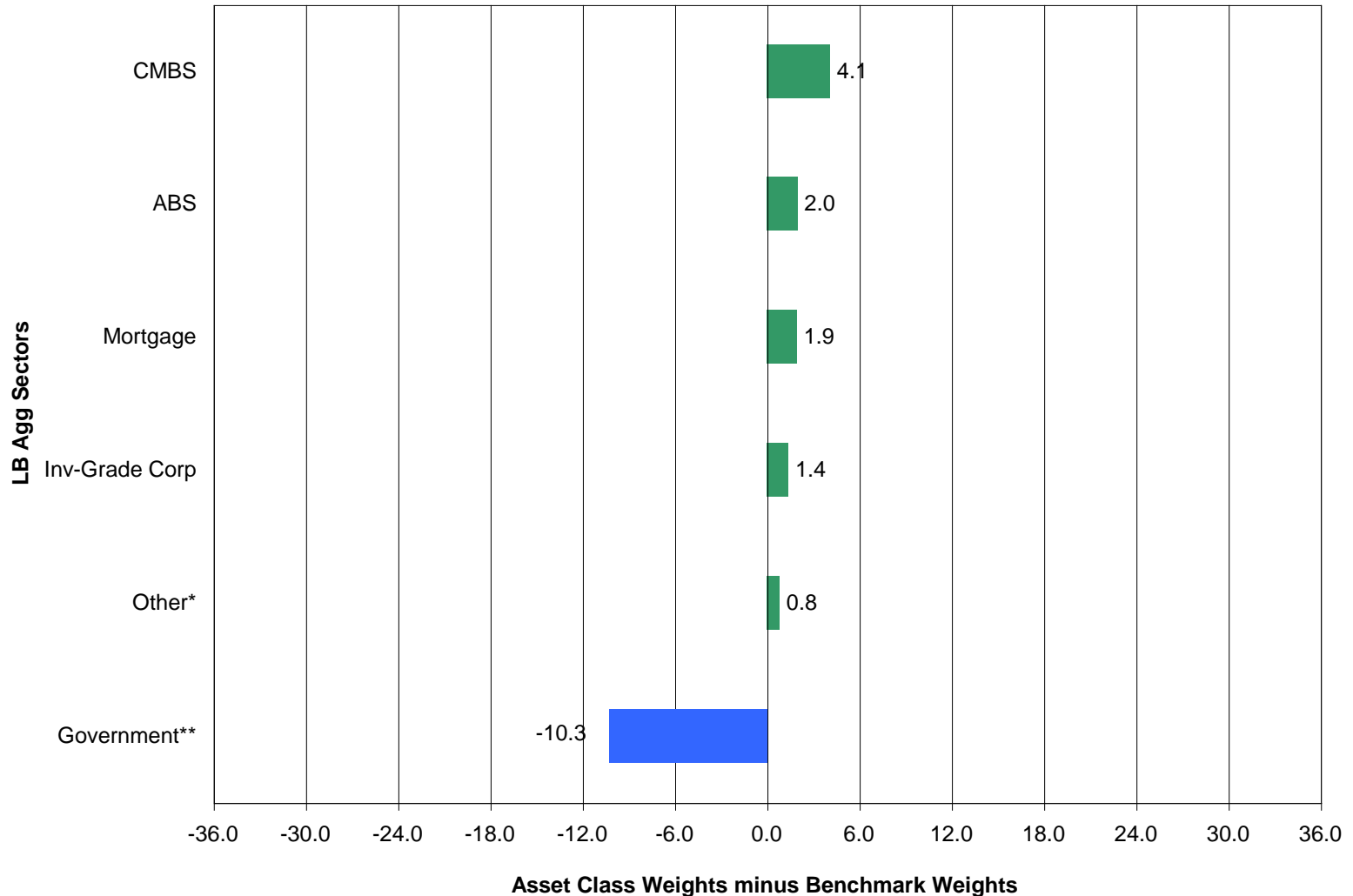


Calculated quarterly Inception date 7/1/1975

Positions: Sector Allocation

ASRS Fixed Income Asset Class

As of June 30, 2008



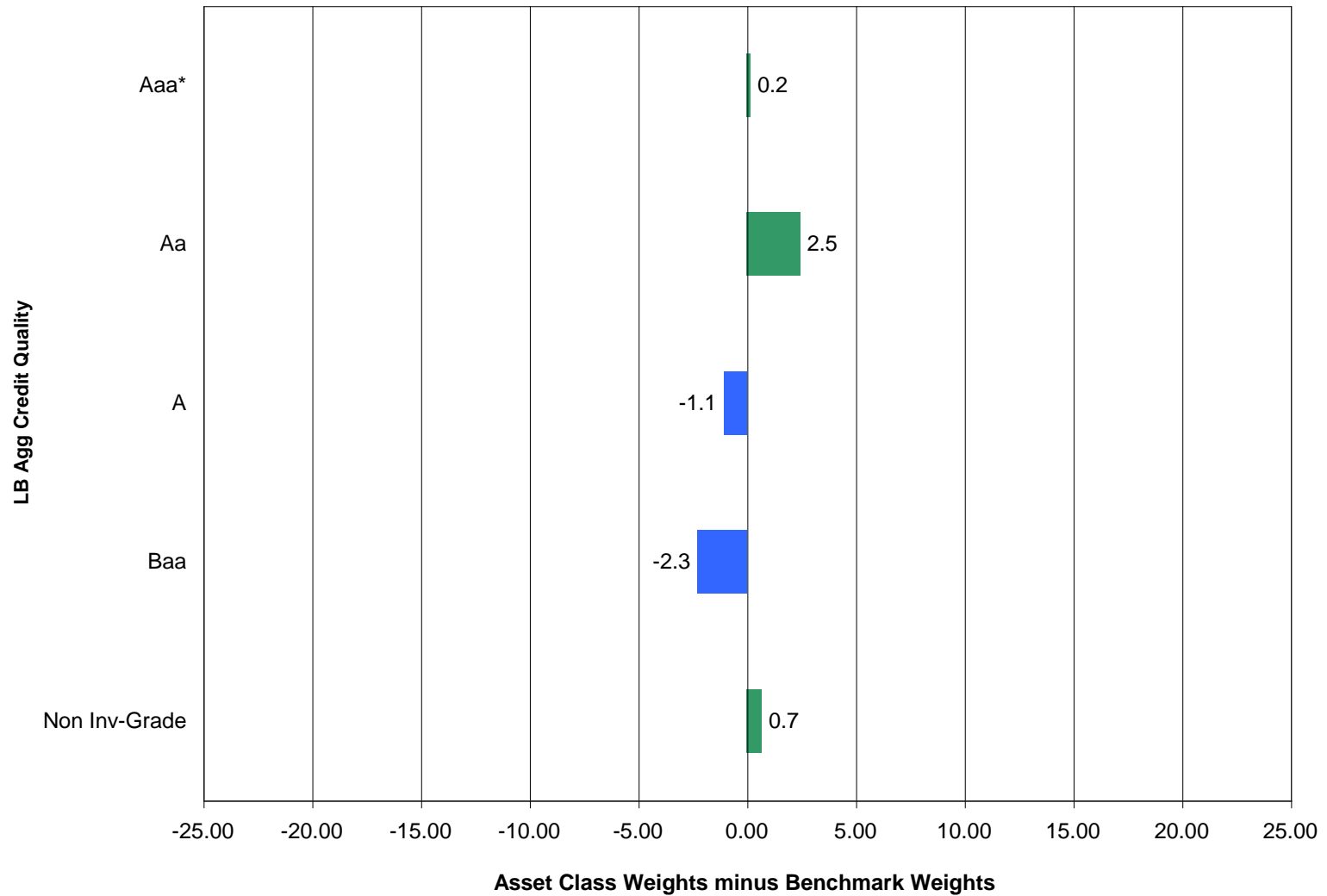
*Other includes High Yield and Non-USD Corporates

**Government includes Treasuries, Government Related, and Cash/Cash equivalents

Positions: Credit Quality

ASRS Fixed Income Asset Class

As of June 30, 2008

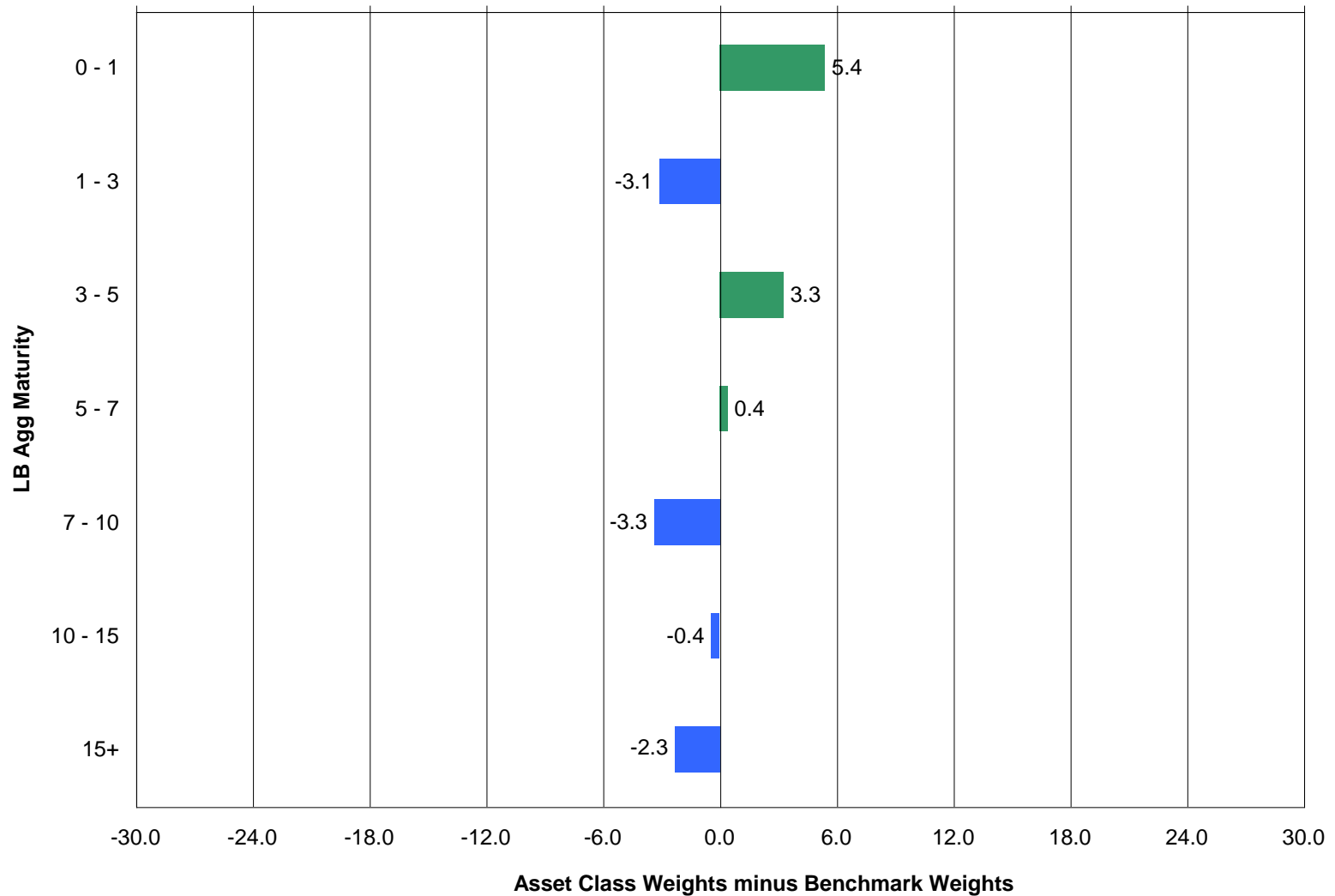


*Aaa includes Treasuries, Government Related, AAA Securitized Bonds, and Cash/Cash equivalents

Positions: Maturity Breakdown

ASRS Fixed Income Asset Class

As of June 30, 2008



ASRS External Fixed Income Managers

Mercer Ratings

June 30, 2008

Mercer ratings signify Mercer’s opinion as to an investment strategy’s prospect for outperforming a suitable benchmark, on a risk-adjusted basis, over a full market cycle.

Manager	Strategy	Mercer Rating	Rating Date
Blackrock	Core +	A	6/9/2008
Pyramis	Core +	B+ (P)	6/27/2008
JP Morgan	Core	B	6/9/2008
JP Morgan	Intermediate Agg Core +	B	6/9/2008

“A” Rated Strategies are assessed as having above average prospects.

“B” Rated Strategies are assessed as having average prospects.

“C” Rated Strategies are assessed as having below average prospects.

“A-” and “B+” are intermediate categories in between “A” and “B” ratings.

“B-” is an intermediate category in between “B” and “C” ratings.

“N” Rated Strategies are not currently rated by Mercer.

BlackRock Investment Management Mercer Manager Review

BlackRock – Active Core Plus Fixed Income – Core Plus		
Factor	Rating (-, =, + or ++)	Comments
Idea Generation	++	While we wouldn't downplay Global Fixed Income CIO Keith Anderson's role as a key architect of the investment process, the impact of his departure is mitigated by the expansive depth of the BlackRock fixed income team and the strength of the firm's risk management infrastructure. Because the firm takes a relative value approach and builds portfolios with a significant number of moderate active positions, BlackRock is less reliant on the thematic instincts of a single investment decision-maker than other firms. The investment process is truly team-based, and Amero and other senior leaders and portfolio managers have meaningful tenure at the firm. Before his elevation to Anderson's peer as co-head of fixed income, Amero had served in a series of sector-level leadership roles at the firm, including oversight of the firm's global credit research effort.
Portfolio Construction	++	
Implementation	+	
Business Management	+	
Overall Rating	A	
Rating Date	6/9/2008	

Pyramis Global Investors Mercer Manager Review

Fidelity Investments (Pyramis) – Active Core Plus Fixed Income – Core Plus		
Factor	Rating (-, =, + or ++)	Comments
Idea Generation	++	The significant investment experience and stability within the fixed income team as well as the sheer number of individuals and resources dedicated to research, distinguish it from many other fixed income shops. Fidelity (Pyramis) is known for its strong in-house fundamental research which is supported by an array of proprietary quantitative models. Another strength of the fixed income team is its explicit understanding of all active portfolio exposures relative to the benchmark. Despite the fixed income group's location in Merrimack, New Hampshire, it is in frequent communication with the large league of equity analysts located in Boston. Core Plus makes use of commingled pools for opportunistic exposure to High Yield, EMD, and non-U.S. dollar securities. We believe these products are managed by deep and experienced teams and provide diversified sources of beta. We are less convinced of these pools' potential for superior alpha generation, limiting our rating for the firm's Core Plus strategy.
Portfolio Construction	+	
Implementation	+	
Business Management	+	
Overall Rating	B+ (P)	
Rating Date	6/27/2008	

JP Morgan Investment Management Mercer Manager Review

JP Morgan Asset Management – Active Core Fixed Income – Core Investment Grade (NY)		
Factor	Rating (-, =, + or ++)	Comments
Idea Generation	N/A	JP Morgan believes that long-term macroeconomic trends and market inefficiencies can be identified and exploited. Their investment process consists of three main components: (1) establishment of macroeconomic themes including interest rate and sector outlooks (2) creation of client-specific duration and sector strategy (3) security selection by specialized teams across market sectors. The experience of the team and its moderate size, which gives it leverage and access to unique opportunities in the marketplace, enable them to exploit new methods of adding value. The fixed income investment process combines the consistent application of a value-oriented framework and the ongoing review, monitoring and control of key portfolio characteristics.
Portfolio Construction	N/A	
Implementation	N/A	
Business Management	N/A	
Overall Rating	B	
Rating Date	6/9/2008	

JP Morgan Investment Management Mercer Manager Review

JP Morgan Asset Management – Intermediate Fixed Income – Intermediate Investment Grade (NY)		
Factor	Rating (-, =, + or ++)	Comments
Idea Generation	N/A	JPMC has been able to keep its fixed income investment management team separate and wholly intact from its fixed income brethren in its New York location. The firm has built a solid fixed income team under the direction of Swanson. JPMC has constructed robust, yet user-friendly risk management tools that all investment personnel can access. In addition, JPMC's Risk Management group is represented on the Short Bond team, which help ensure that portfolio structuring decisions and credit information don't slip through the cracks.
Portfolio Construction	N/A	
Implementation	N/A	
Business Management	N/A	
Overall Rating	B	
Rating Date	6/9/2008	

APPENDIX

U.S. Fixed Income Manager Reviews (Individual)

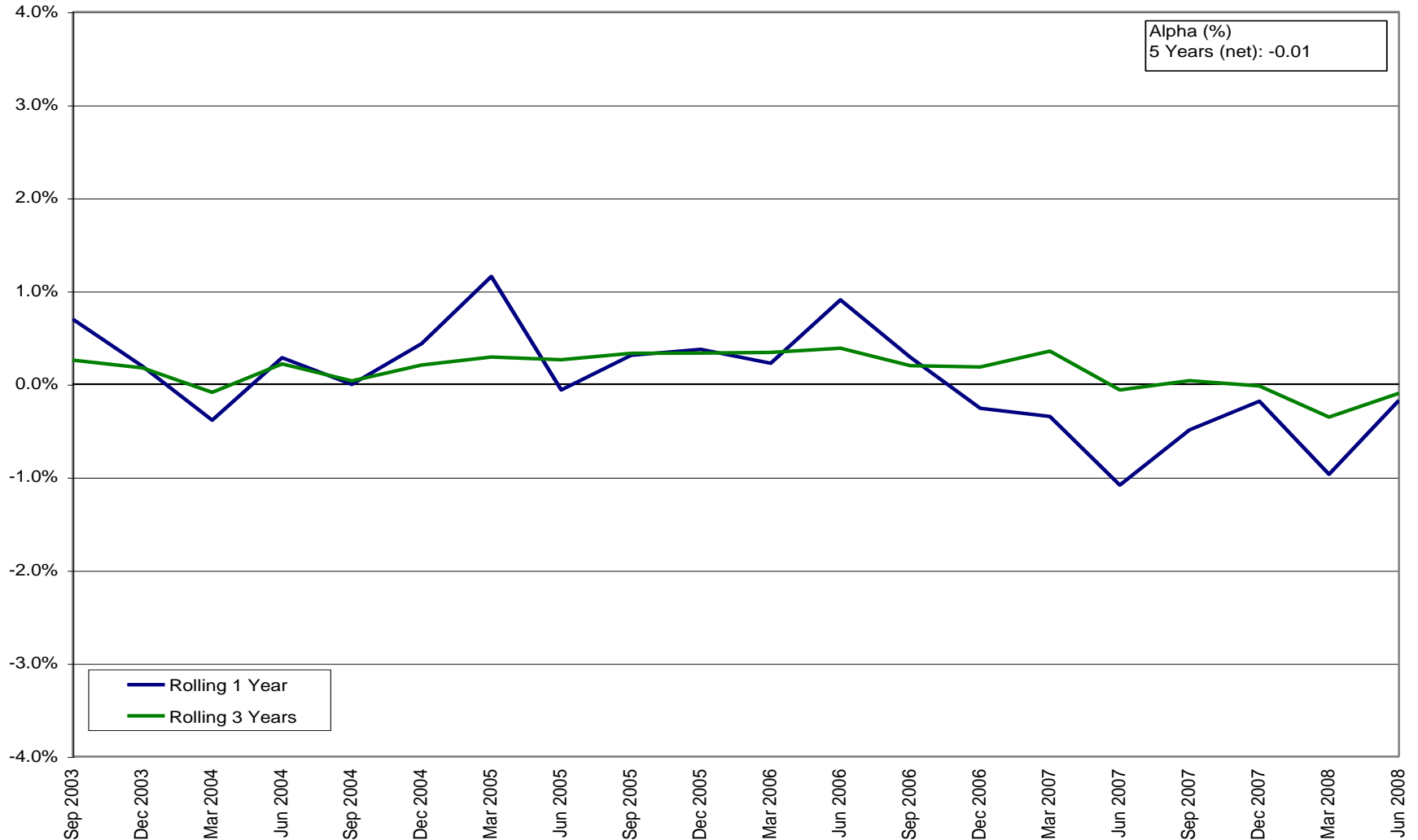
BlackRock Investment Management Qualitative Factors

Factors	Description
People	<ul style="list-style-type: none"> •Team approach to portfolio management, no portfolio is managed exclusively by any single portfolio manager
Philosophy	<ul style="list-style-type: none"> •Rigorous Credit Analysis •State-of-the-art analytics systems •Specialists in High Yield and Investment Grade Corporate Markets •BlackRock's philosophy has not changed since the inception of the firm
Process	<ul style="list-style-type: none"> •BlackRock's Investment Strategy Group (ISG) evaluates macroeconomic trends, fundamental and technical factors to establish a framework for positioning client portfolios •Lead portfolio managers oversee the portfolio construction process for each portfolio •Sector specialists are responsible for the selection of securities taking into consideration the specific objectives and constraints of each portfolio

Performance: Alpha

BlackRock Investment Management

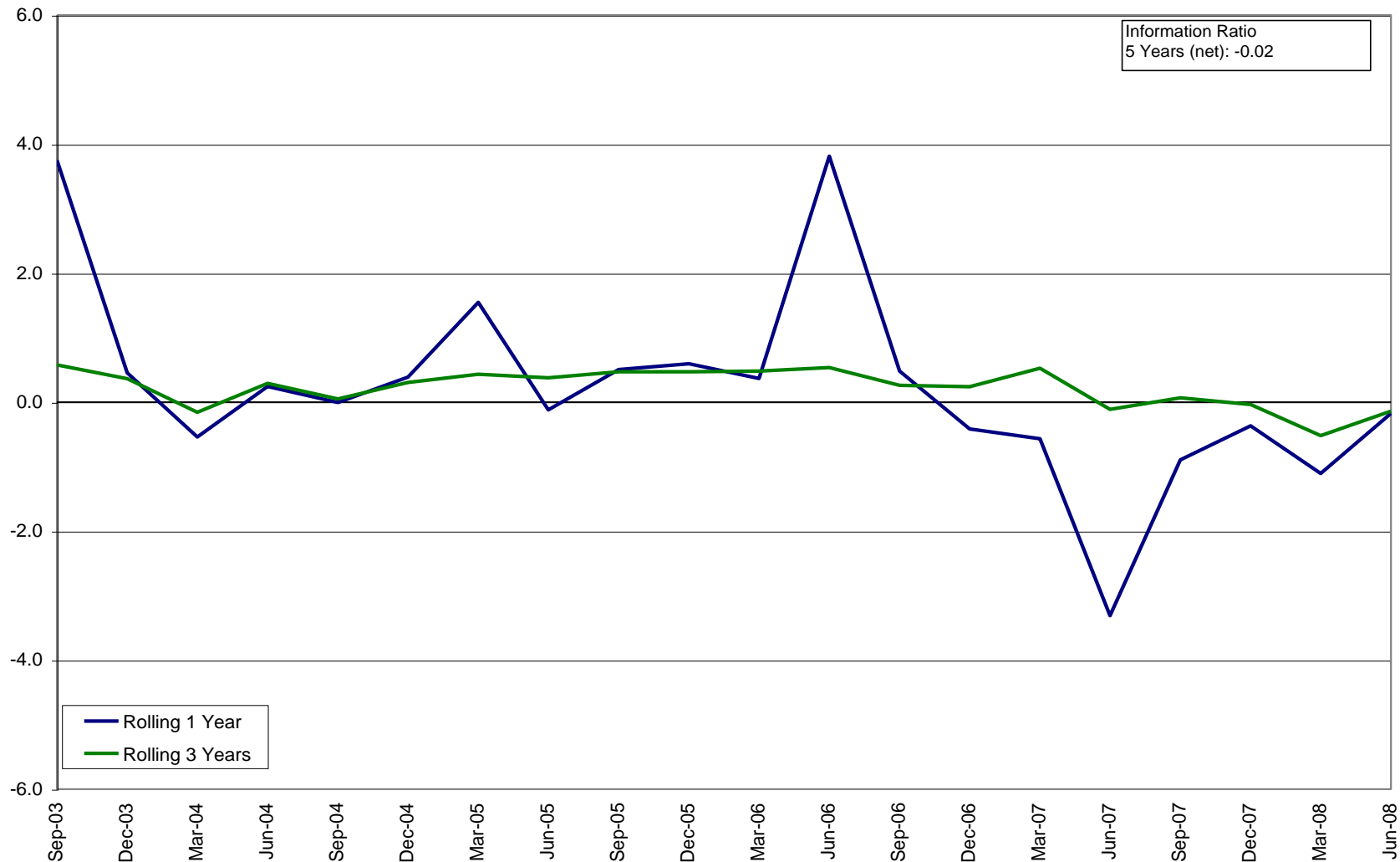
For the 5-Year Period Ending June 30, 2008



Calculated quarterly Inception date 11/30/1998

Performance: Information Ratio BlackRock Investment Management

For the 5-Year Period Ending June 30, 2008

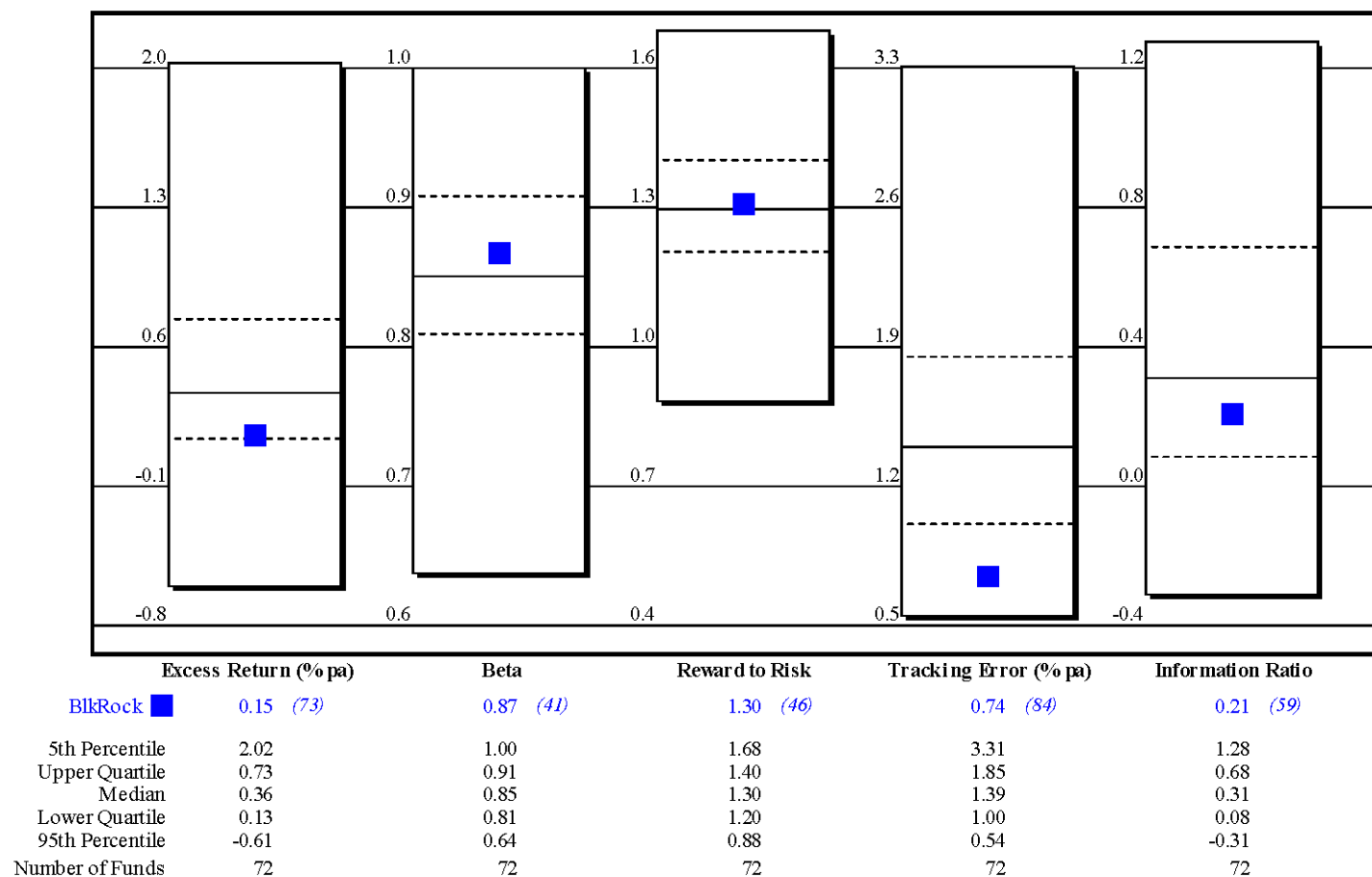


Calculated quarterly Inception date 11/30/1998

Peer Comparison with the Mercer Fixed Core Opportunistic Universe

BlackRock Investment Management

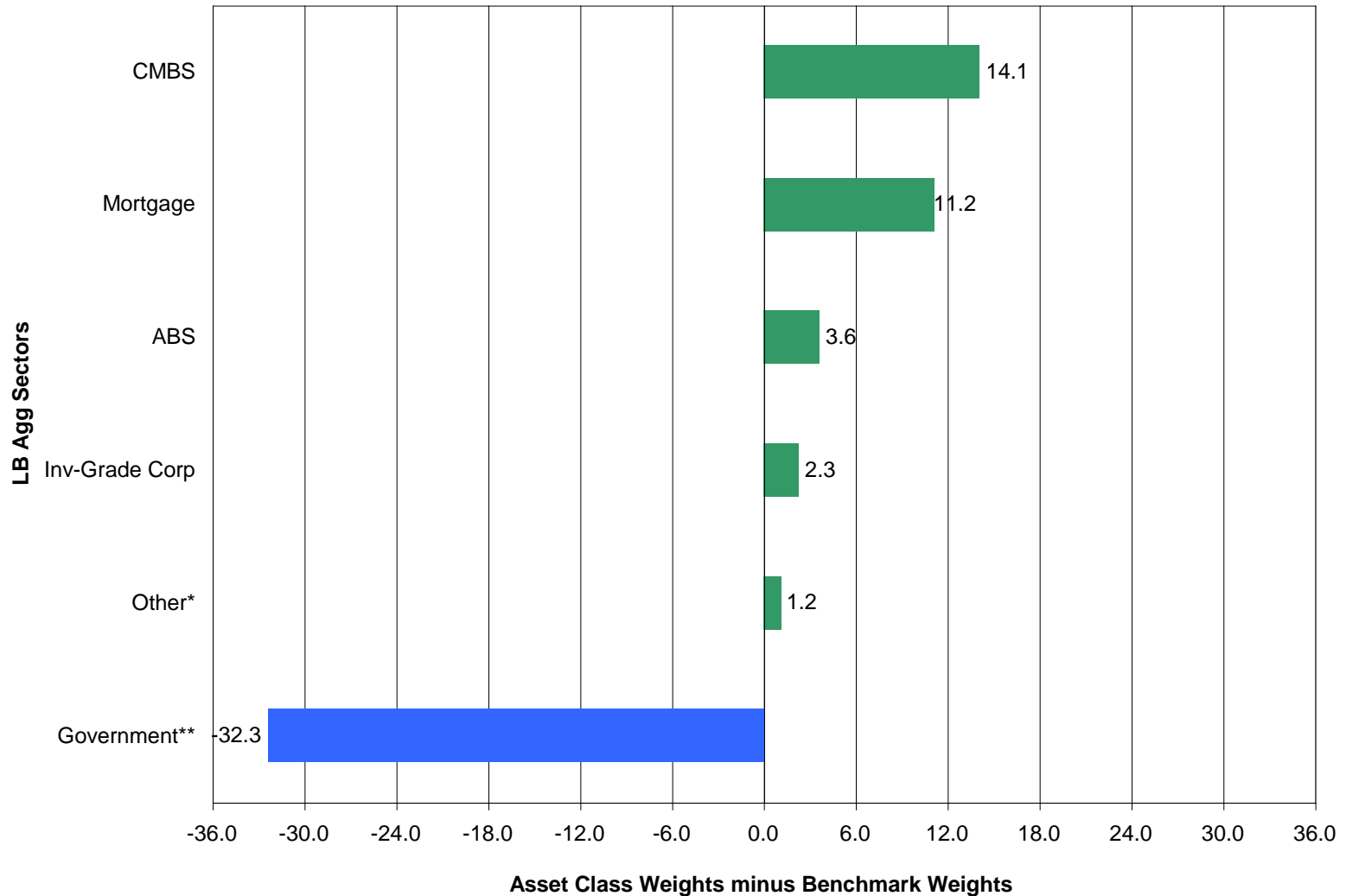
For the 5-Year Period Ending June 30, 2008



Positions: Portfolio Analysis – Sector Allocation

BlackRock Investment Management

As of June 30, 2008



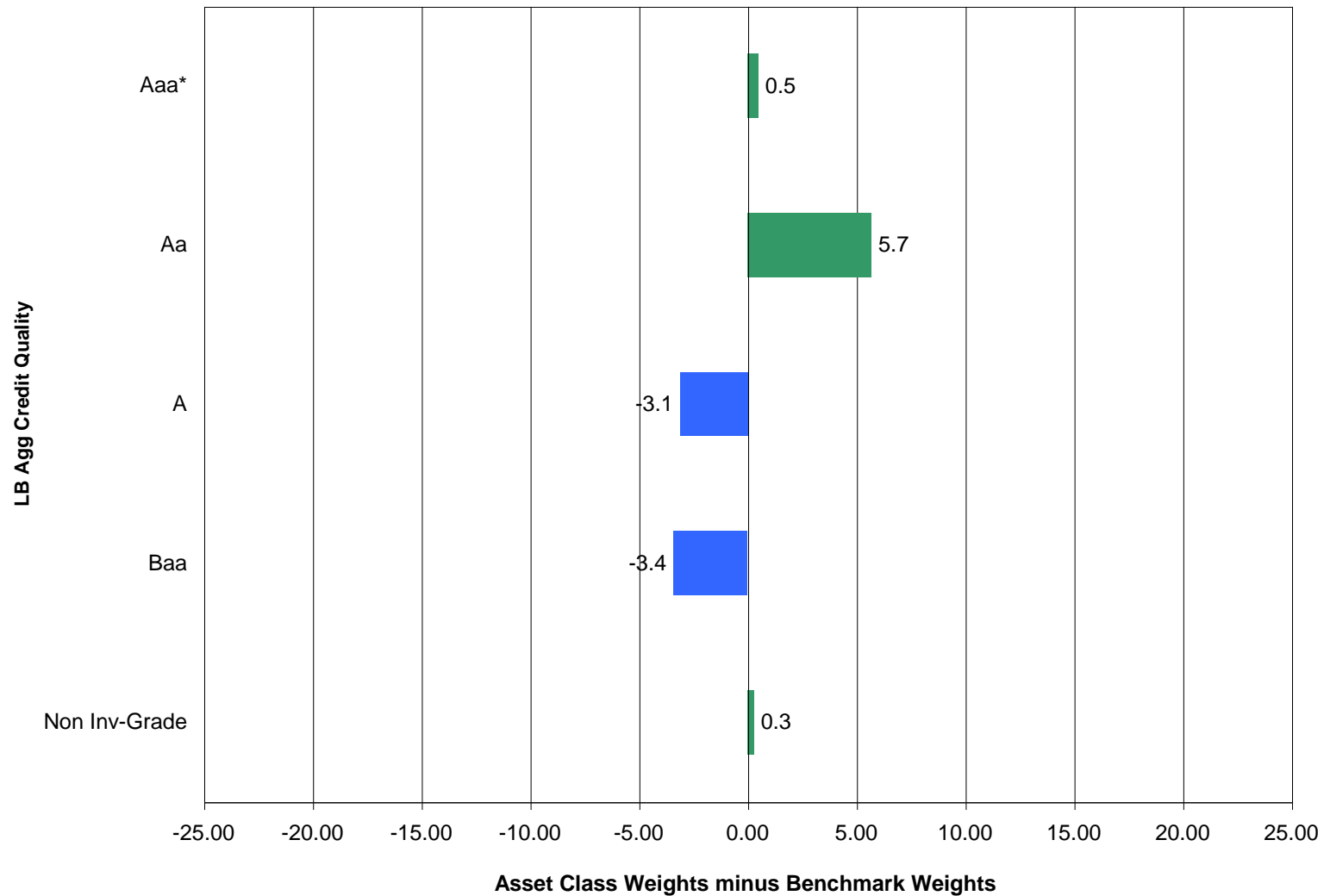
*Other includes High Yield and Non-USD Corporates

**Government includes Treasuries, Government Related, and Cash/Cash equivalents

Positions: Portfolio Analysis – Credit Quality

BlackRock Investment Management

As of June 30, 2008

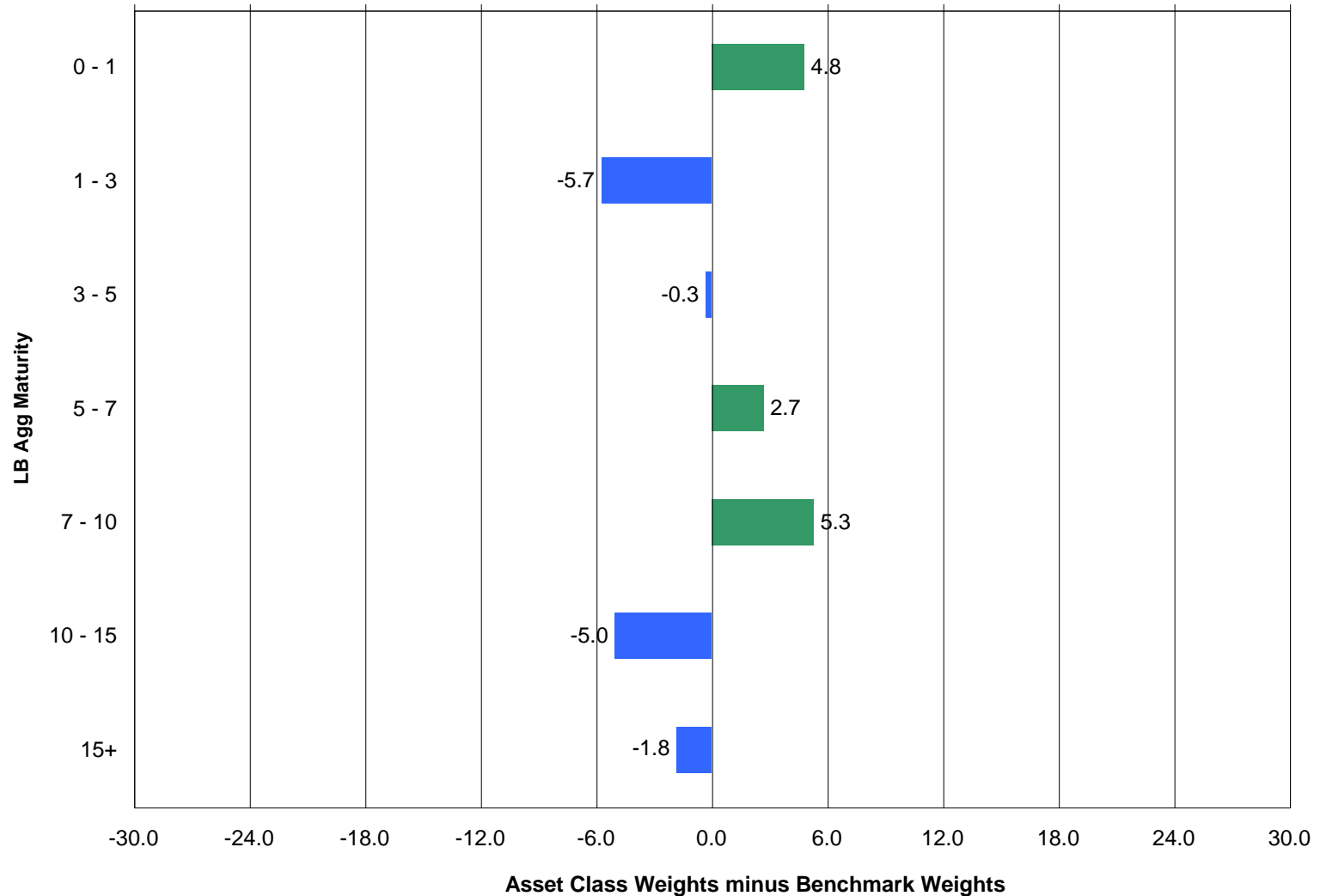


*Aaa includes Treasuries, Government Related, AAA Securitized Bonds, and Cash/Cash equivalents

Positions: Portfolio Analysis – Maturity Breakdown

BlackRock Investment Management

As of June 30, 2008



Pyramis Global Investors

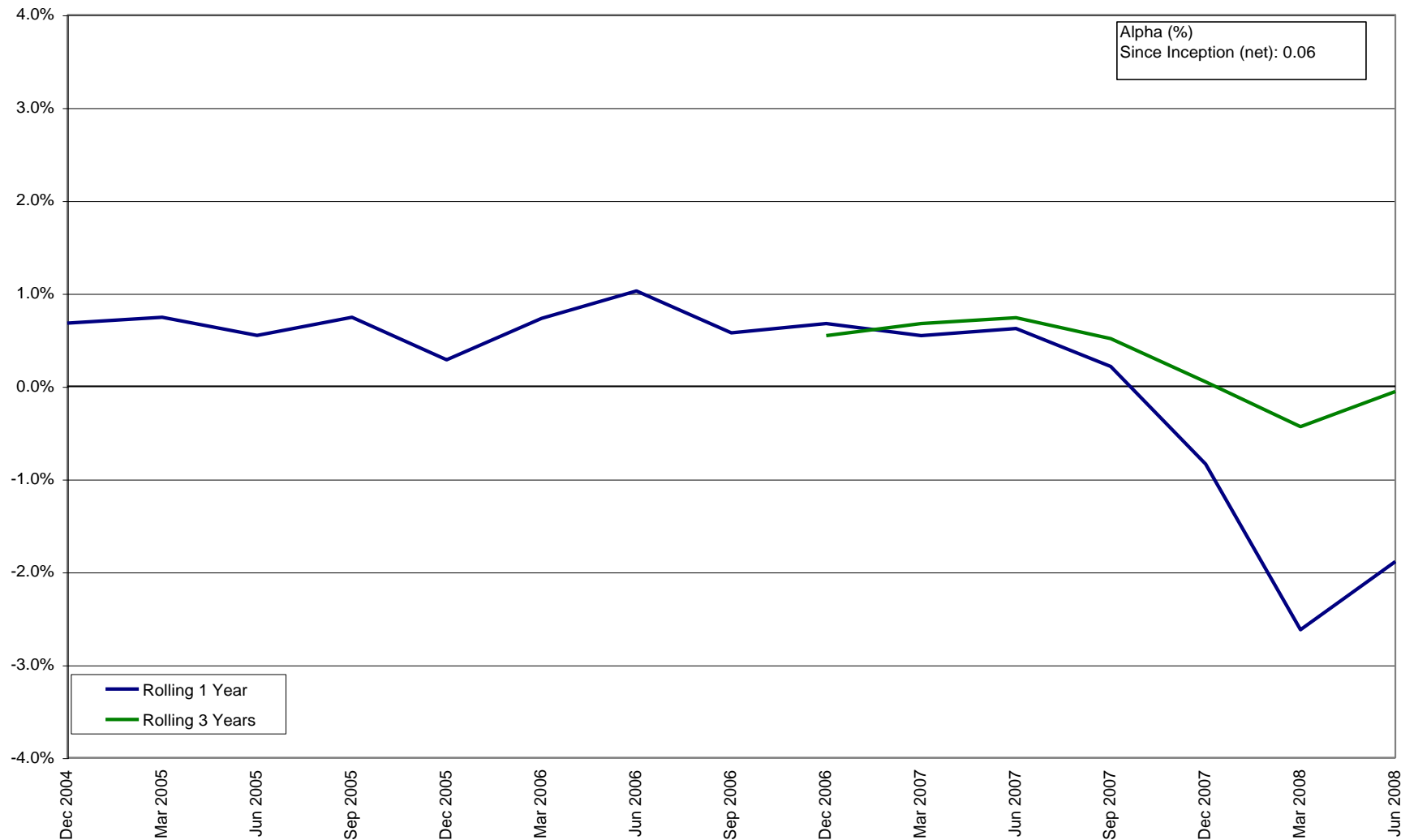
Qualitative Factors

Factors	Description
People	<ul style="list-style-type: none"> •Portfolio management team led by lead PM and dedicated specialist investment teams from each asset class •Core Plus PM responsible for asset allocation between asset classes and portfolio rebalancing •Interaction of PM/analysts/traders to continuously monitor portfolios
Philosophy	<ul style="list-style-type: none"> •Focus on security selection •Rigorous credit analysis •Specialists in Investment-Grade and High Yield Markets
Process	<ul style="list-style-type: none"> •Portfolios constructed based on tactical asset allocation decisions between investment grade and high yield asset classes based on client's specific risk/reward objectives •Accounts managed in a pool or separate account vehicle by dedicated investment teams

Performance: Alpha

Pyramis Global Advisors

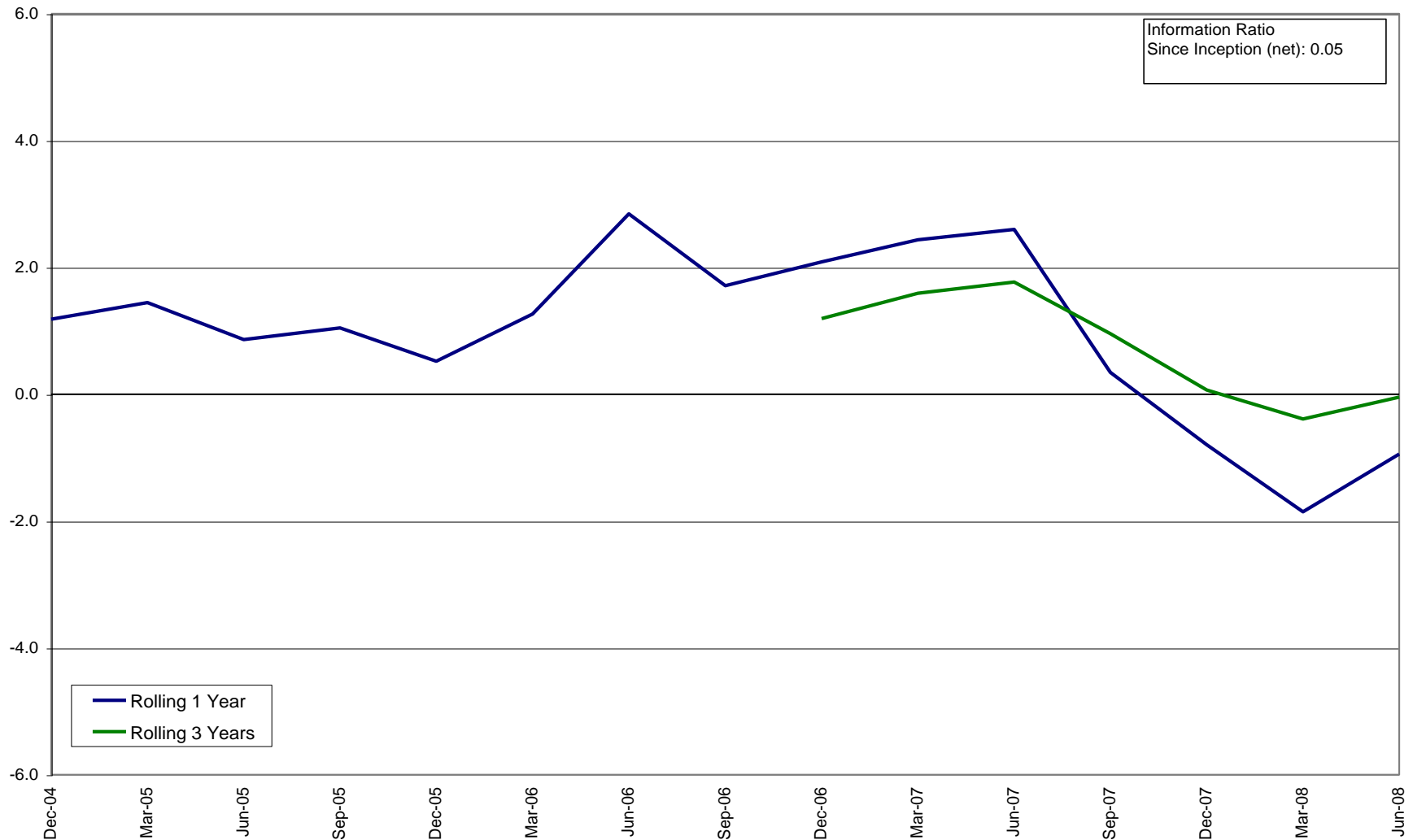
Since Inception Period Ending June 30, 2008



Calculated quarterly Inception date 12/31/2003

Performance: Information Ratio Pyramis Global Advisors

Since Inception Period Ending June 30, 2008

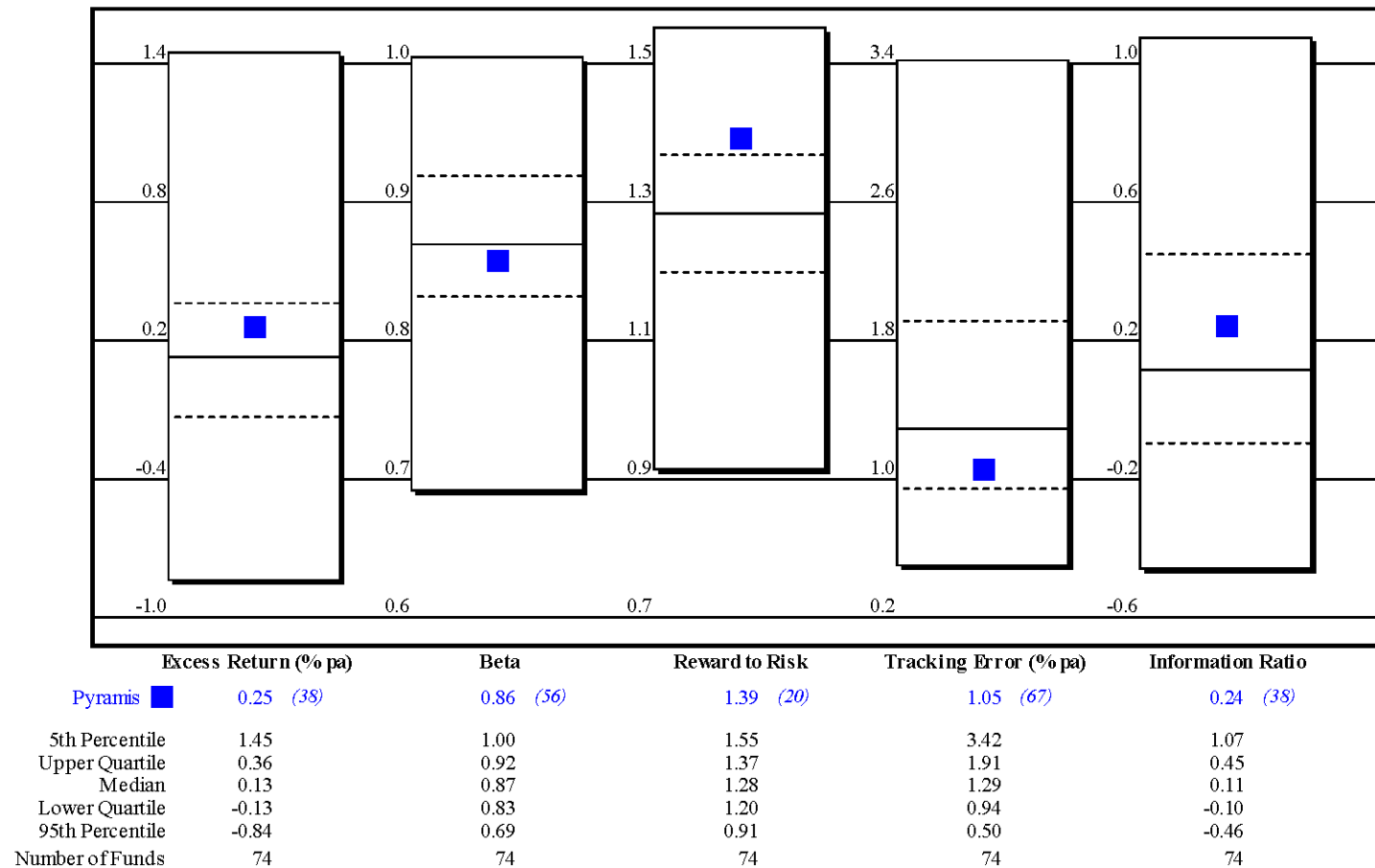


Calculated quarterly Inception date 12/31/2003

Peer Comparison with the Mercer Fixed Core Opportunistic Universe

Pyramis Global Advisors

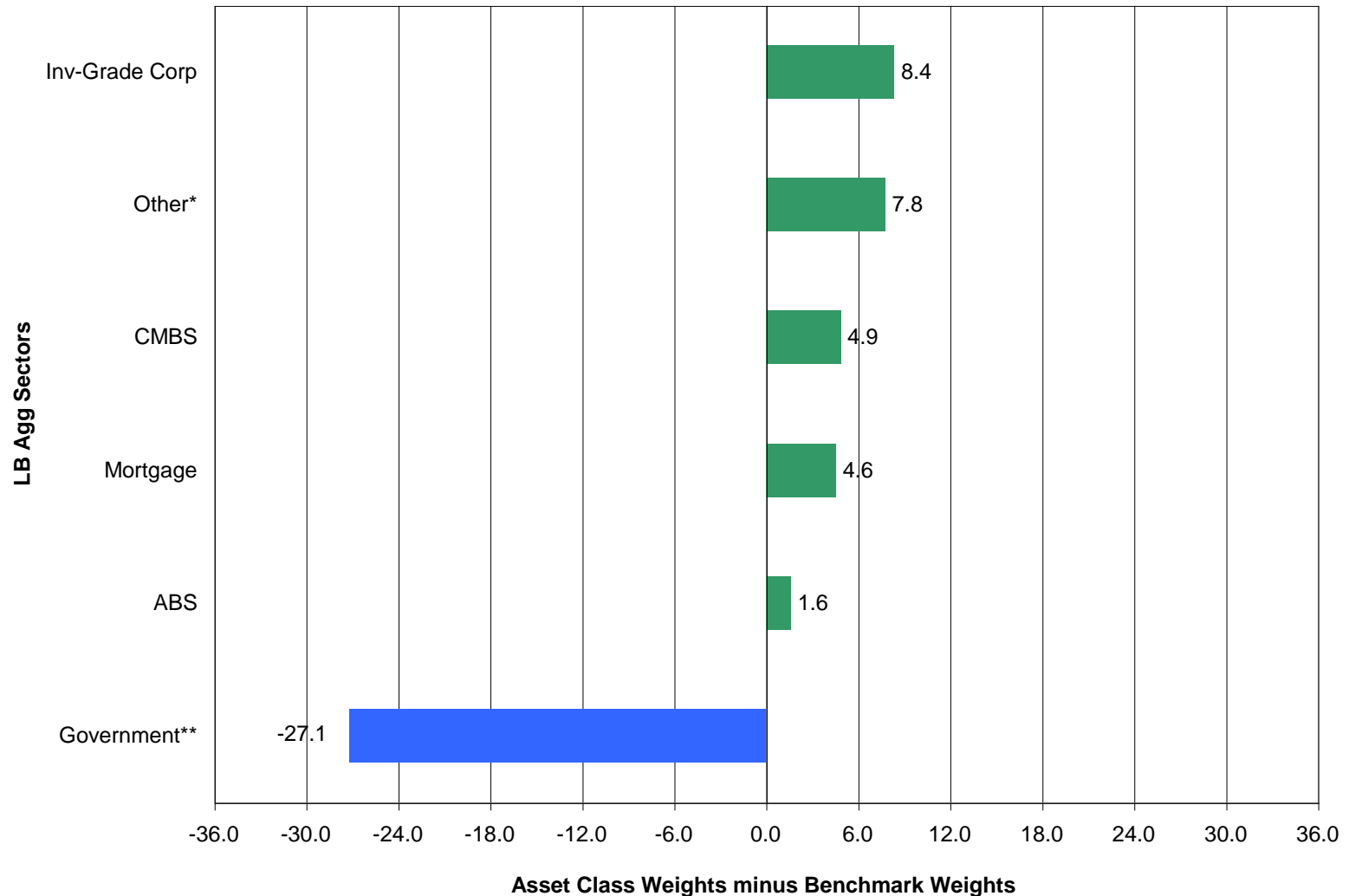
Since Inception Period Ending June 30, 2008



Positions: Portfolio Analysis – Sector Allocation

Pyramis Global Advisors

As of June 30, 2008



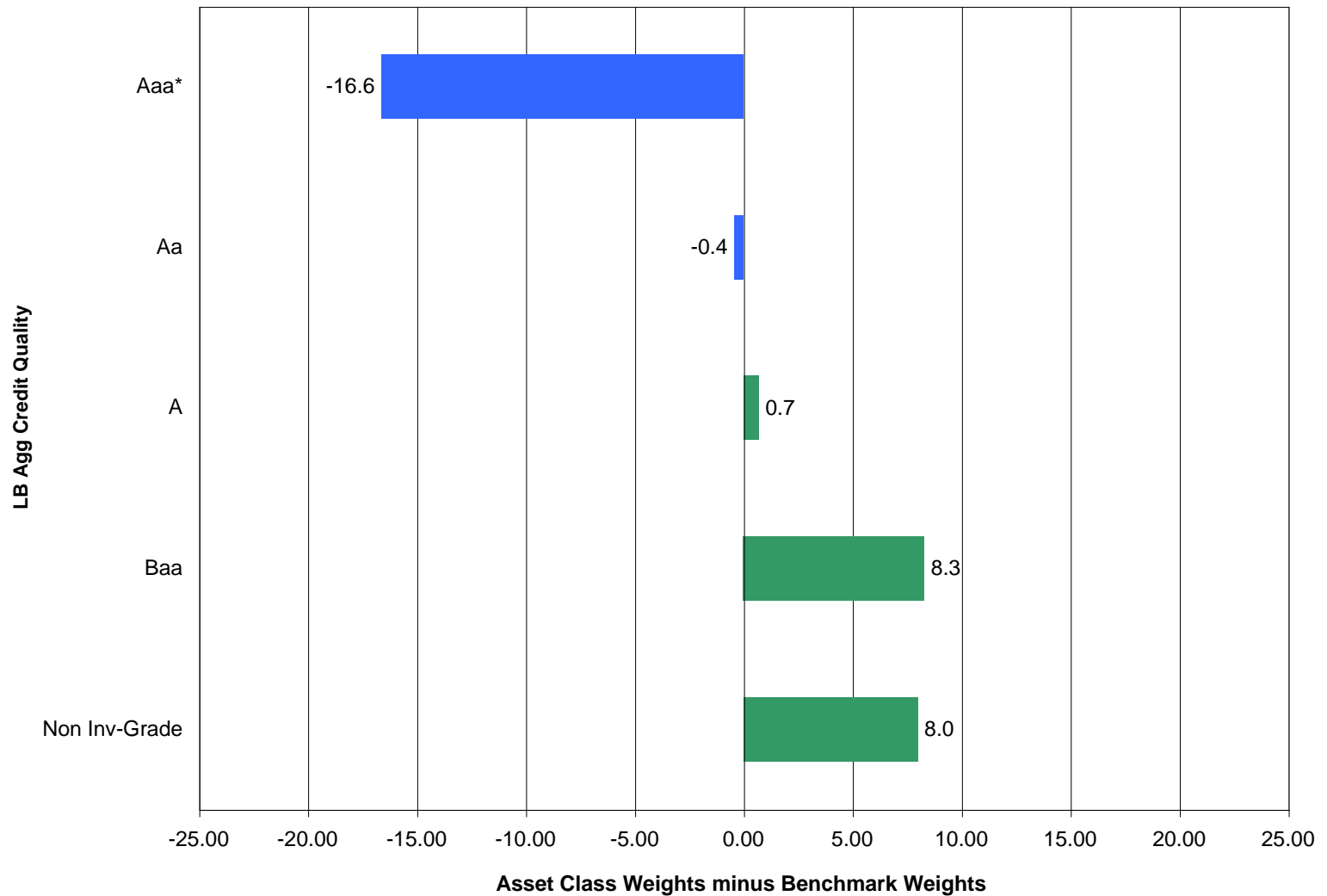
*Other includes High Yield

**Government includes Treasuries, Government Related, and Cash/Cash equivalents

Positions: Portfolio Analysis – Credit Quality

Pyramis Global Advisors

As of June 30, 2008

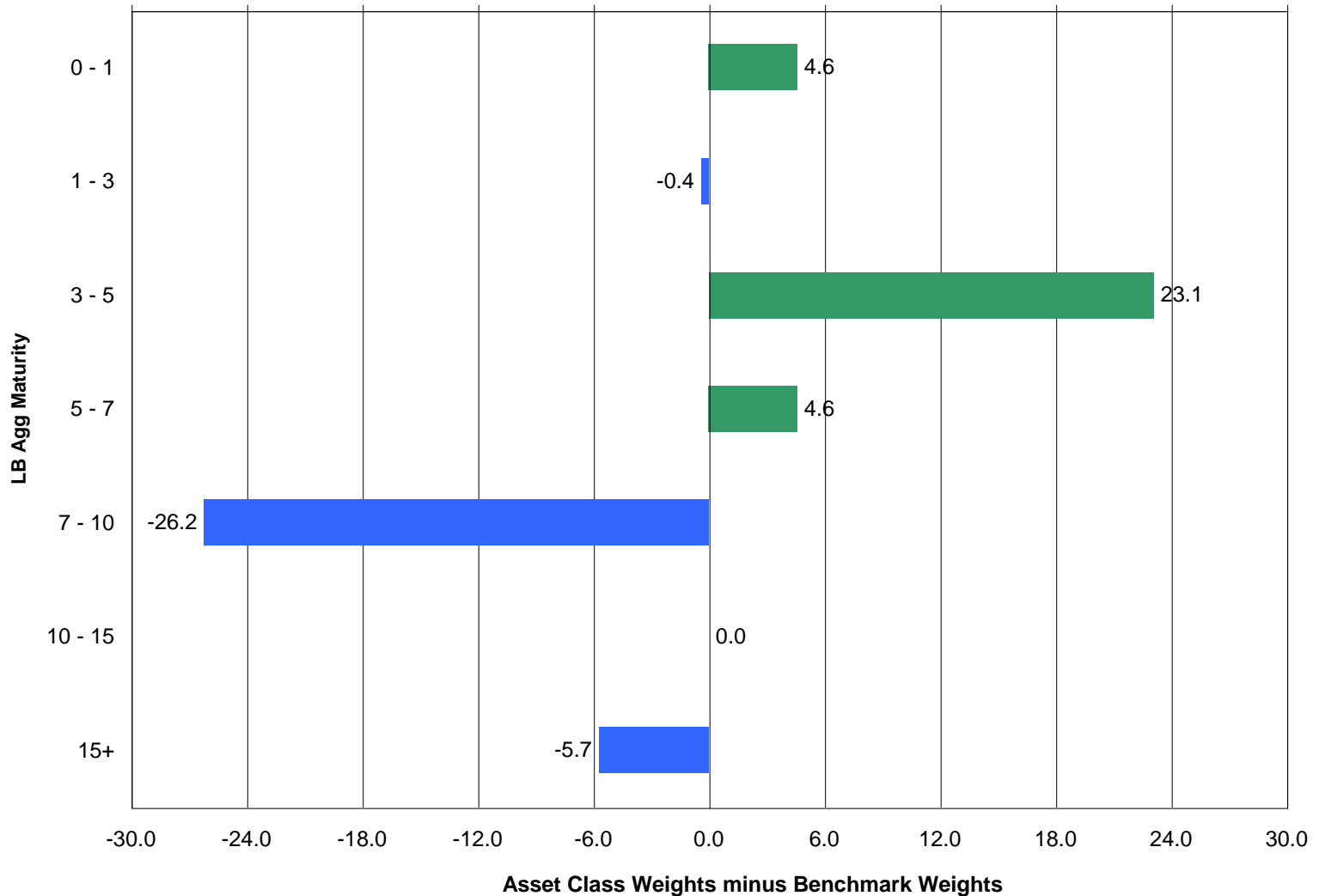


*Aaa includes Treasuries, Government Related, AAA Securitized Bonds, and Cash/Cash equivalents

Positions: Portfolio Analysis – Maturity Breakdown

Pyramis Global Advisors

As of June 30, 2008



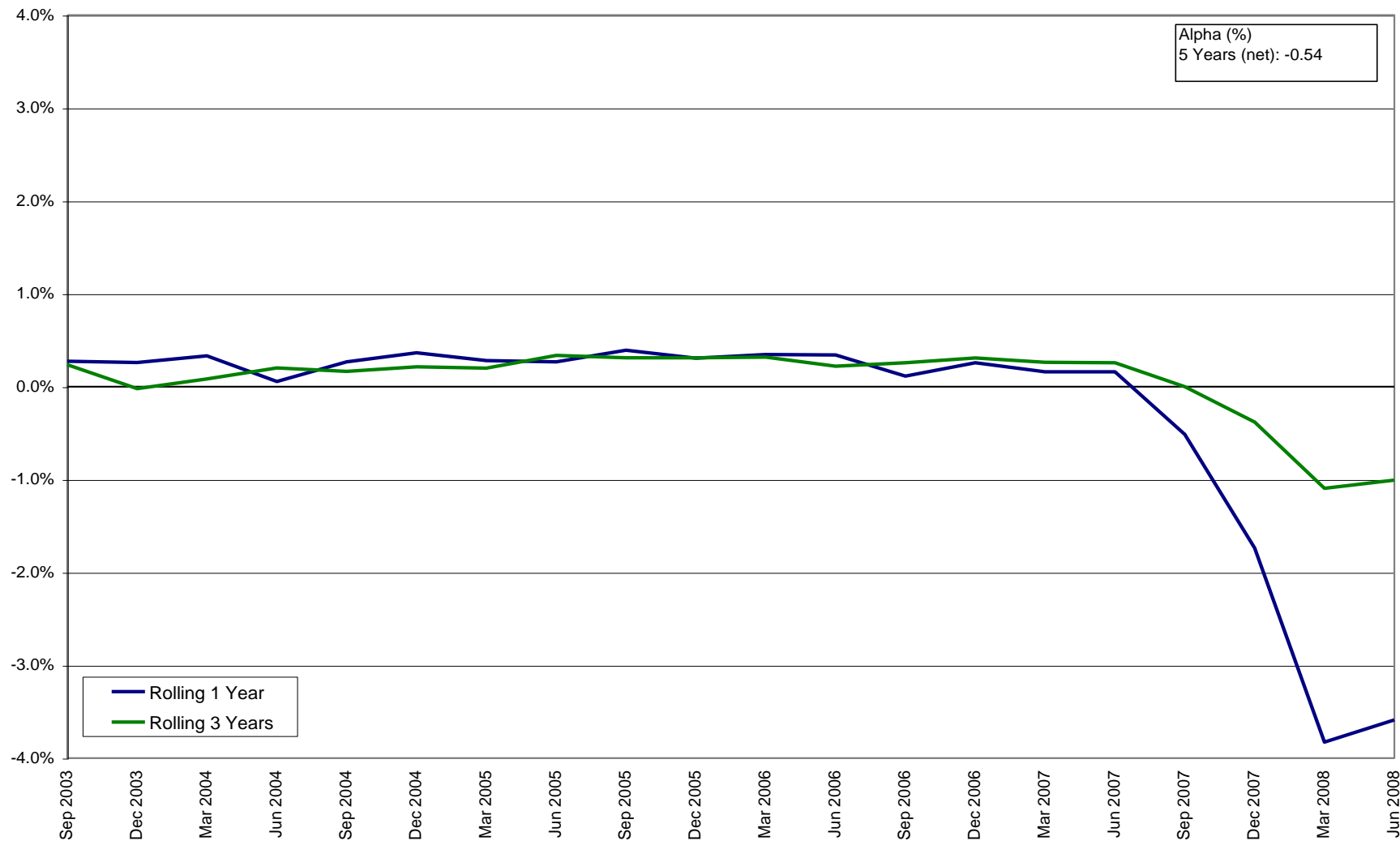
JP Morgan Asset Management Qualitative Factors

Factors	Description
People	<ul style="list-style-type: none"> •Team based approach to portfolio management •Proprietary fixed income research analyzes the investment process – from top-down strategy, to security selection, to portfolio construction and risk management •The acquisition of Bear Sterns, completed in mid-June, effectively increased JPMorgan’s investment banking, securities-trading operations and prime brokerage, which allowed for JPMorgan’s immediate access into the business as the firm did not have a prime brokerage operation
Philosophy	<ul style="list-style-type: none"> •Focus on security selection •Rigorous credit analysis •Specialists in Investment-Grade Corporate Markets
Process	<ul style="list-style-type: none"> • Formal quarterly strategy sessions to determine firm’s wide interest rate and sector portfolio themes across the Fixed Income Group for the coming quarters •Value added process by establishing sector and duration strategy, and security selection ideas from specialists teams

Performance: Alpha

JP Morgan Asset Management

For the 5-Year Period Ending June 30, 2008

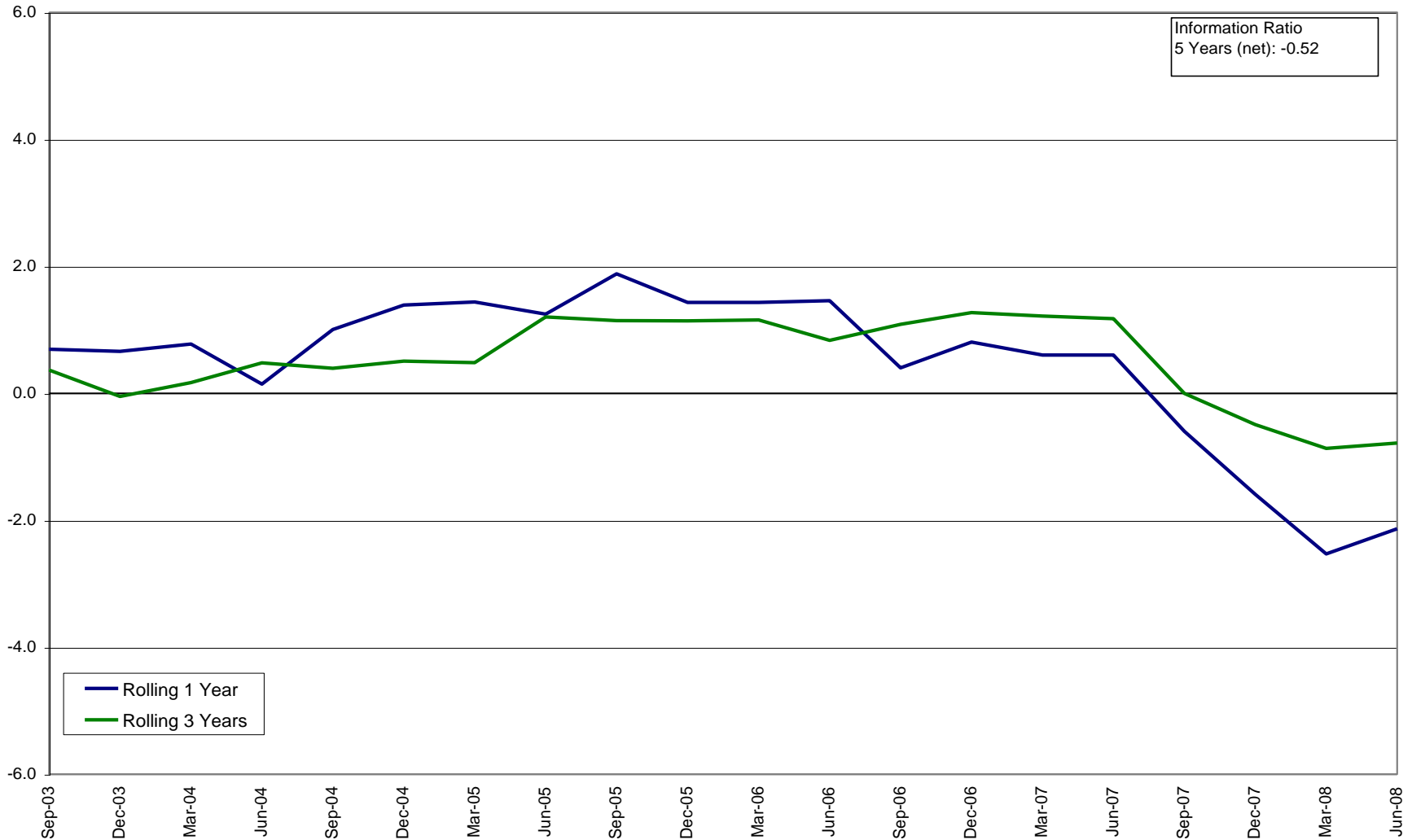


Calculated quarterly Inception date 06/30/1987

Performance: Information Ratio

JP Morgan Asset Management

For the 5-Year Period Ending June 30, 2008

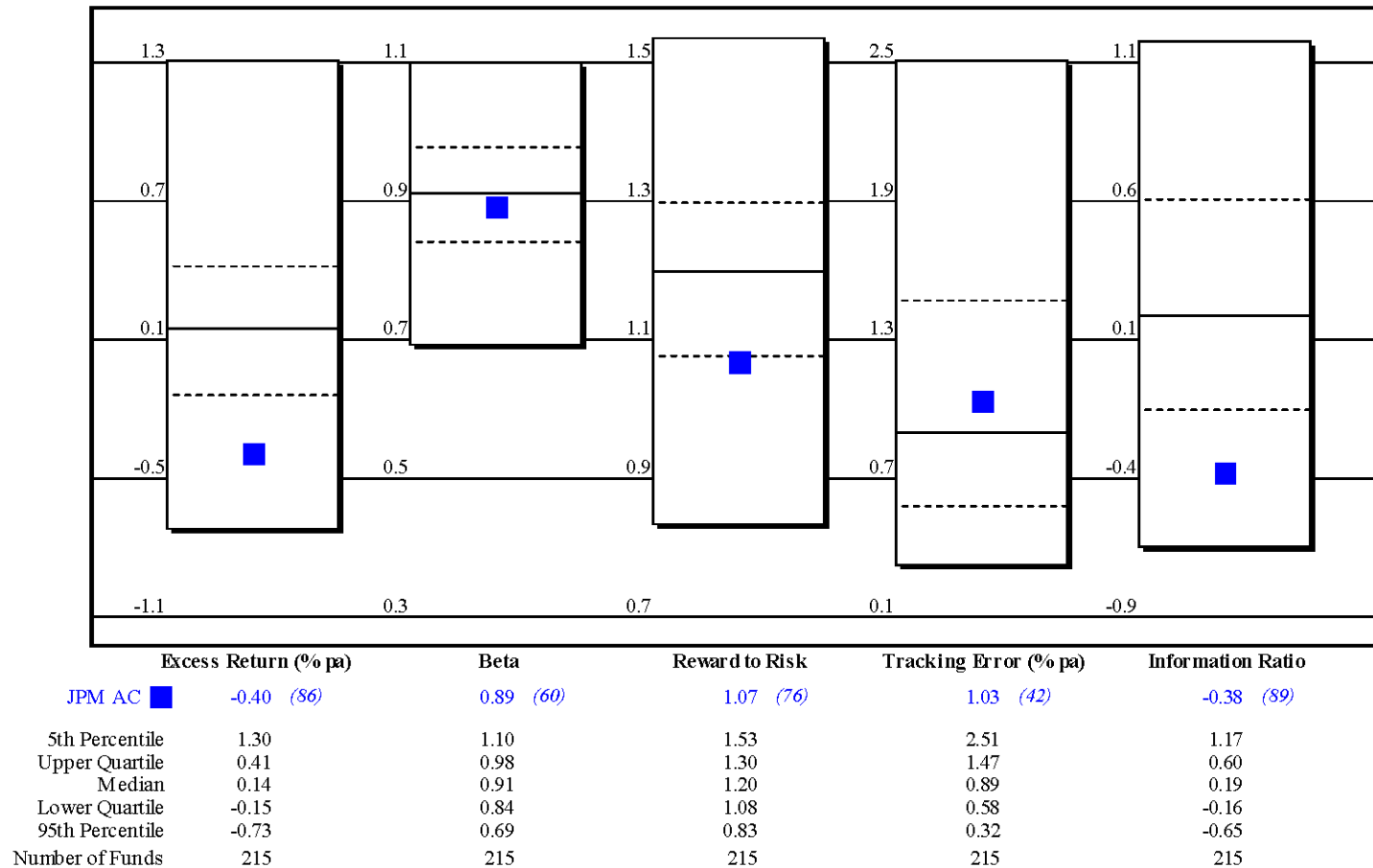


Calculated quarterly Inception date 06/30/1987

Peer Comparison with the Mercer Fixed Core Universe

JP Morgan Asset Management

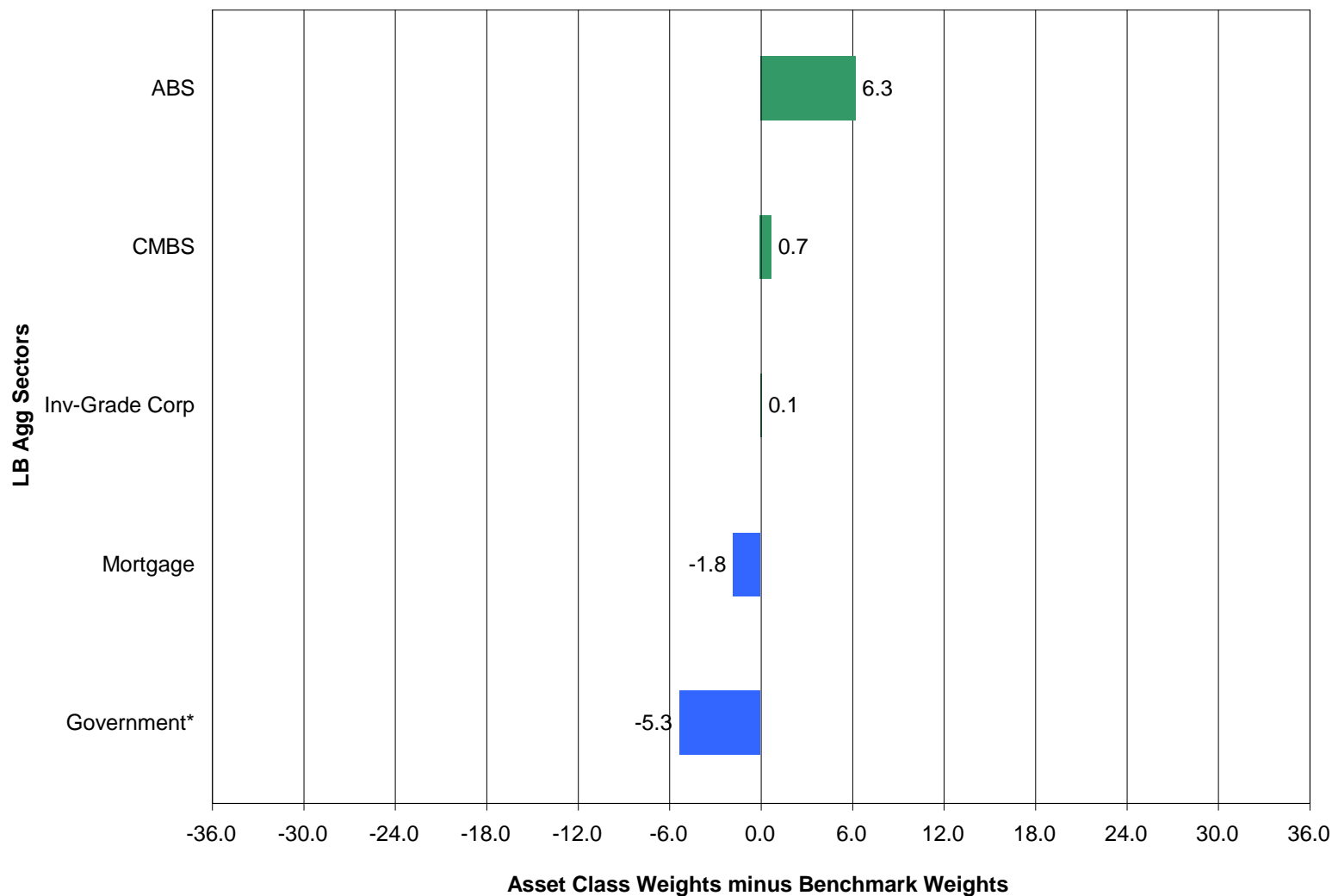
For the 5-Year Period Ending June 30, 2008



Positions: Portfolio Analysis – Sector Allocation

JP Morgan Asset Management

As of June 30, 2008

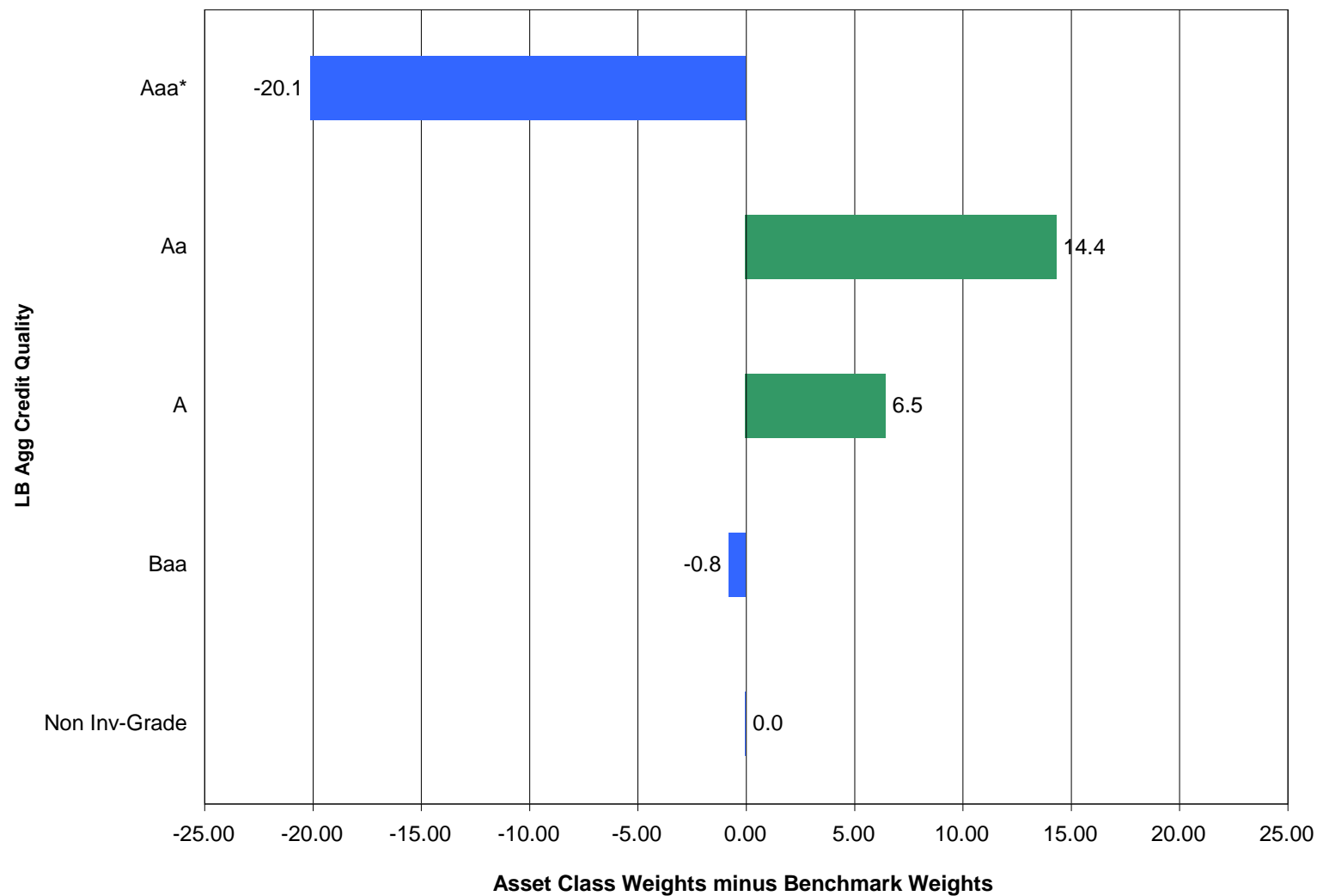


*Government includes Treasuries, Government Related, and Cash/Cash equivalents

Positions: Portfolio Analysis – Credit Quality

JP Morgan Asset Management

As of June 30, 2008

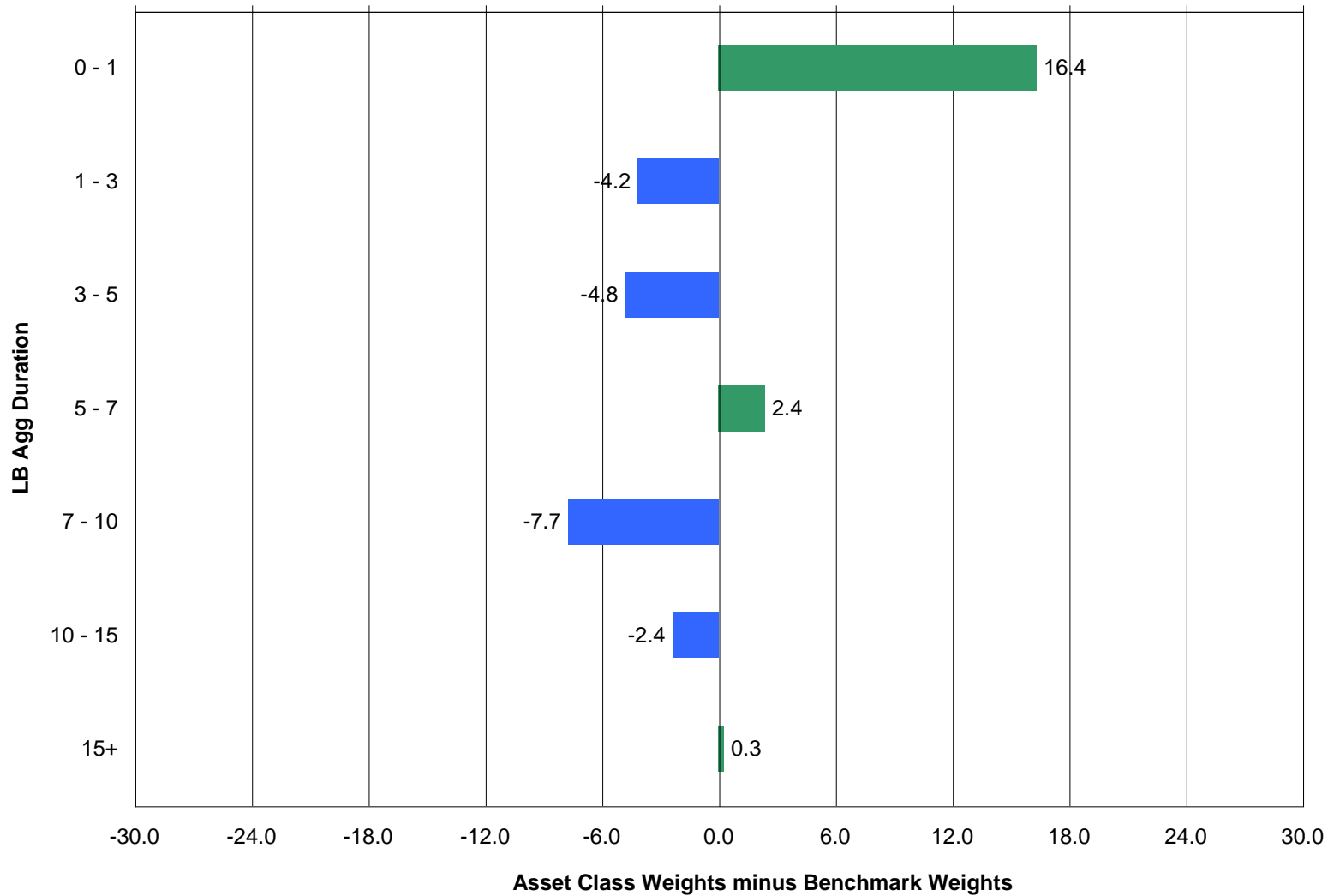


*Aaa includes Treasuries, Government Related, AAA Securitized Bonds, and Cash/Cash equivalents

Positions: Portfolio Analysis – Maturity Breakdown

JP Morgan Asset Management

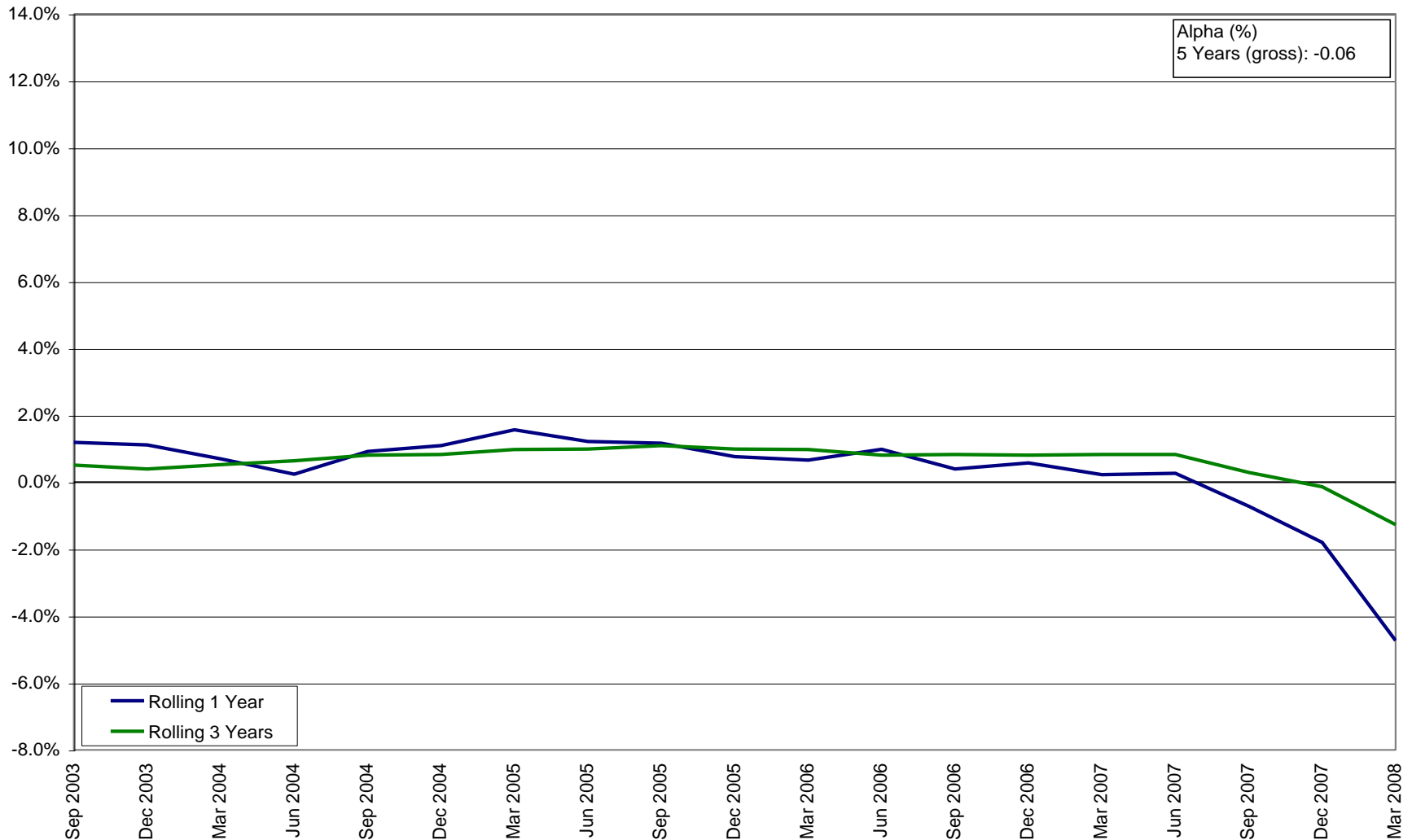
As of June 30, 2008



Performance: Alpha

JP Morgan Intermediate Fixed Composite

For the 5-Year Period Ending June 30, 2008



Calculated quarterly and gross of fees

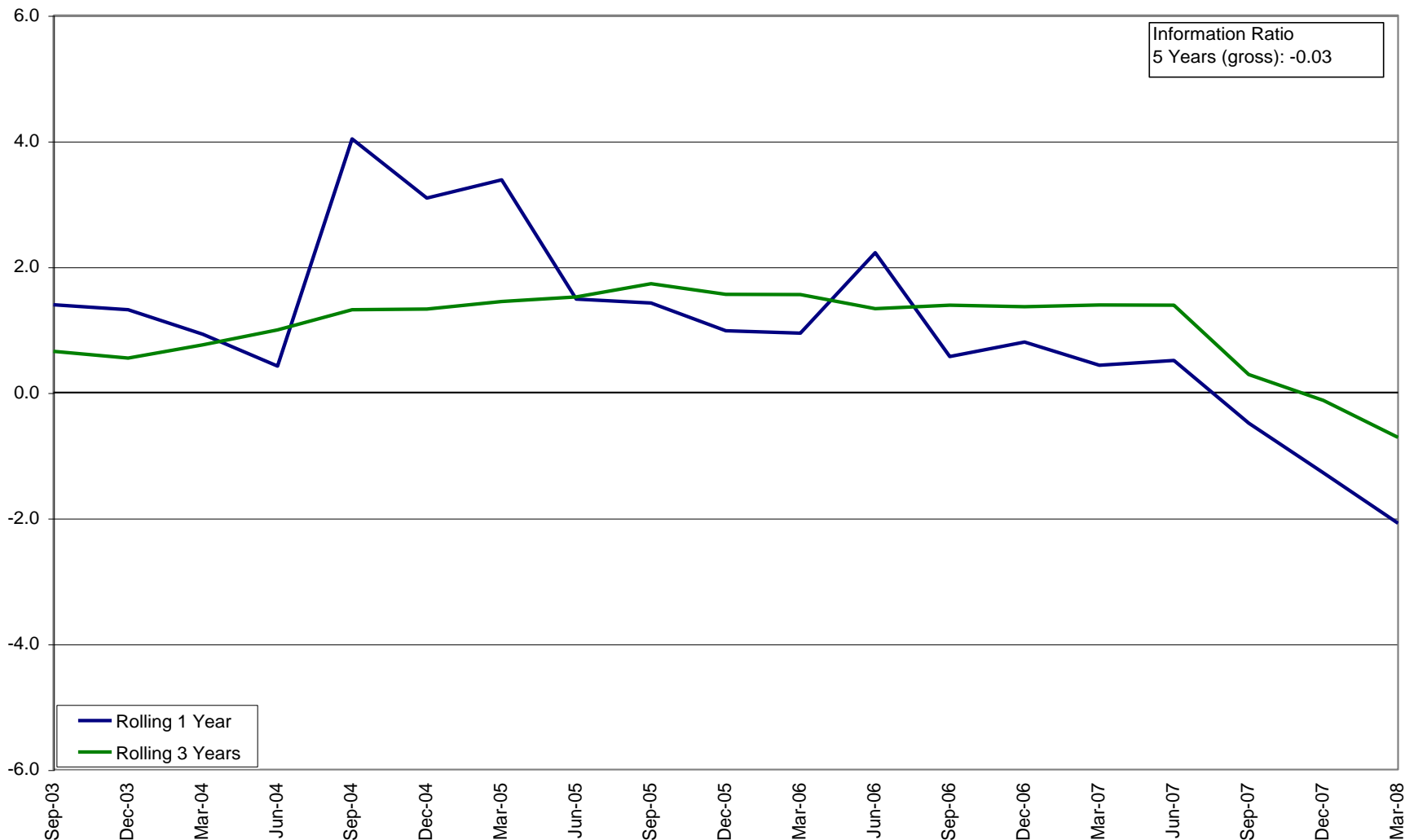
Strategy Inception date: 11/30/2007

Given the relatively short history of the ASRS mandate, composite return stream was used

Performance: Information Ratio

JP Morgan Intermediate Fixed Composite

For the 5-Year Period Ending June 30, 2008



Calculated quarterly and gross of fees

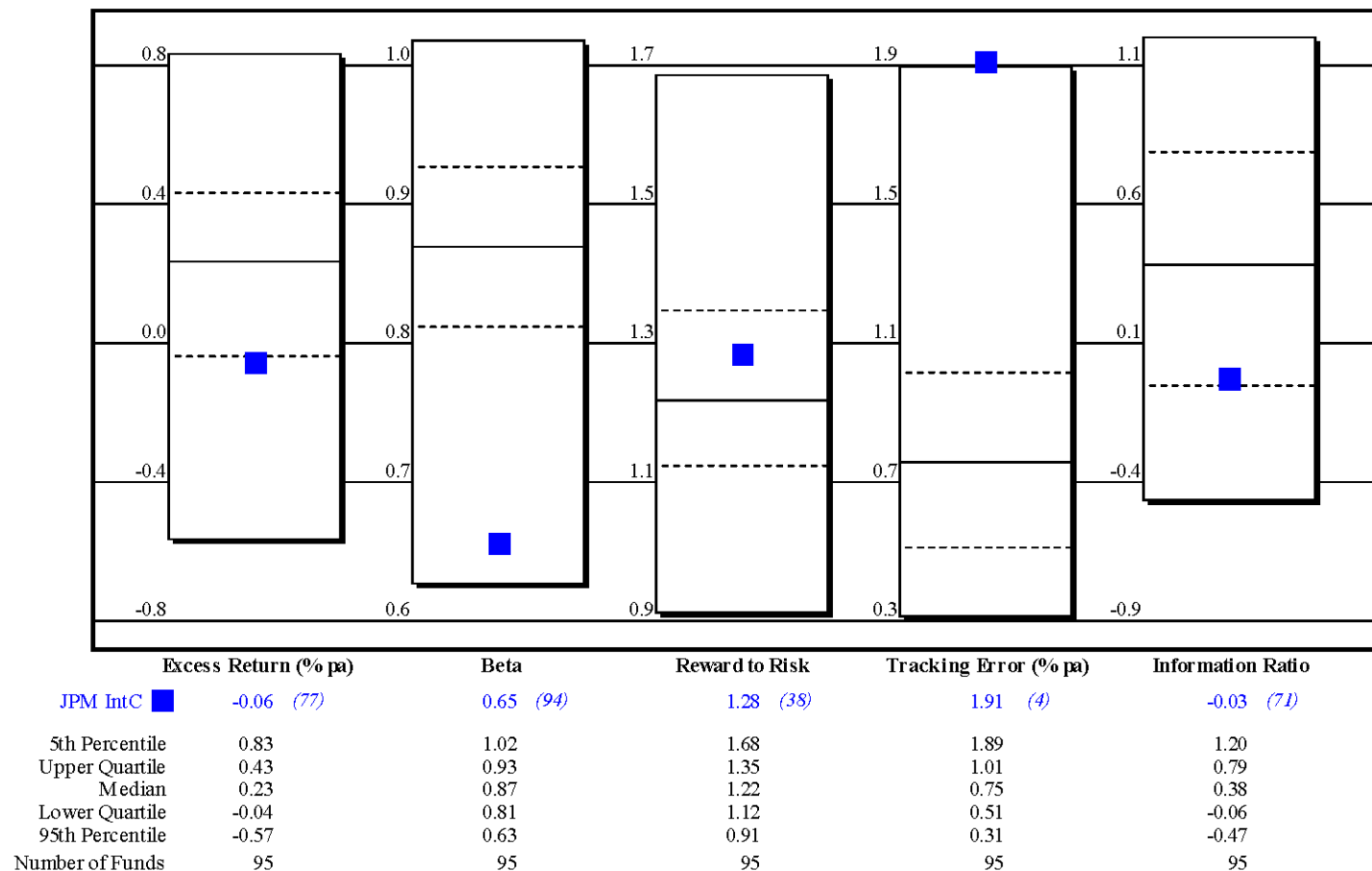
Strategy Inception date: 11/30/2007

Given the relatively short history of the ASRS mandate, composite return stream was used

Peer Comparison with the Mercer U.S. Fixed Intermediate Universe

JP Morgan Intermediate Fixed Composite

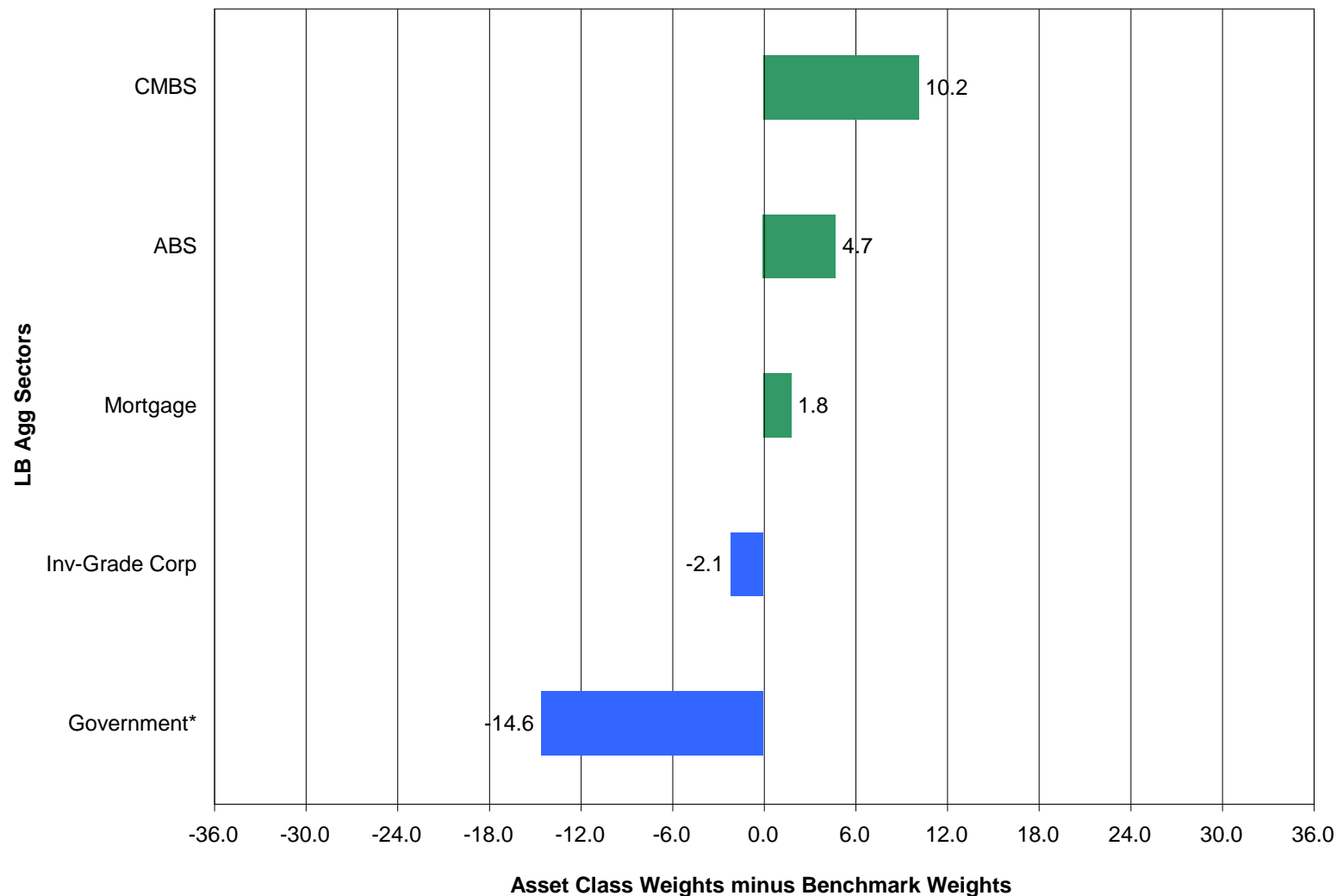
For the 5-Year Period Ending June 30, 2008



Positions: Portfolio Analysis – Sector Allocation

JP Morgan Intermediate Fixed

As of June 30, 2008

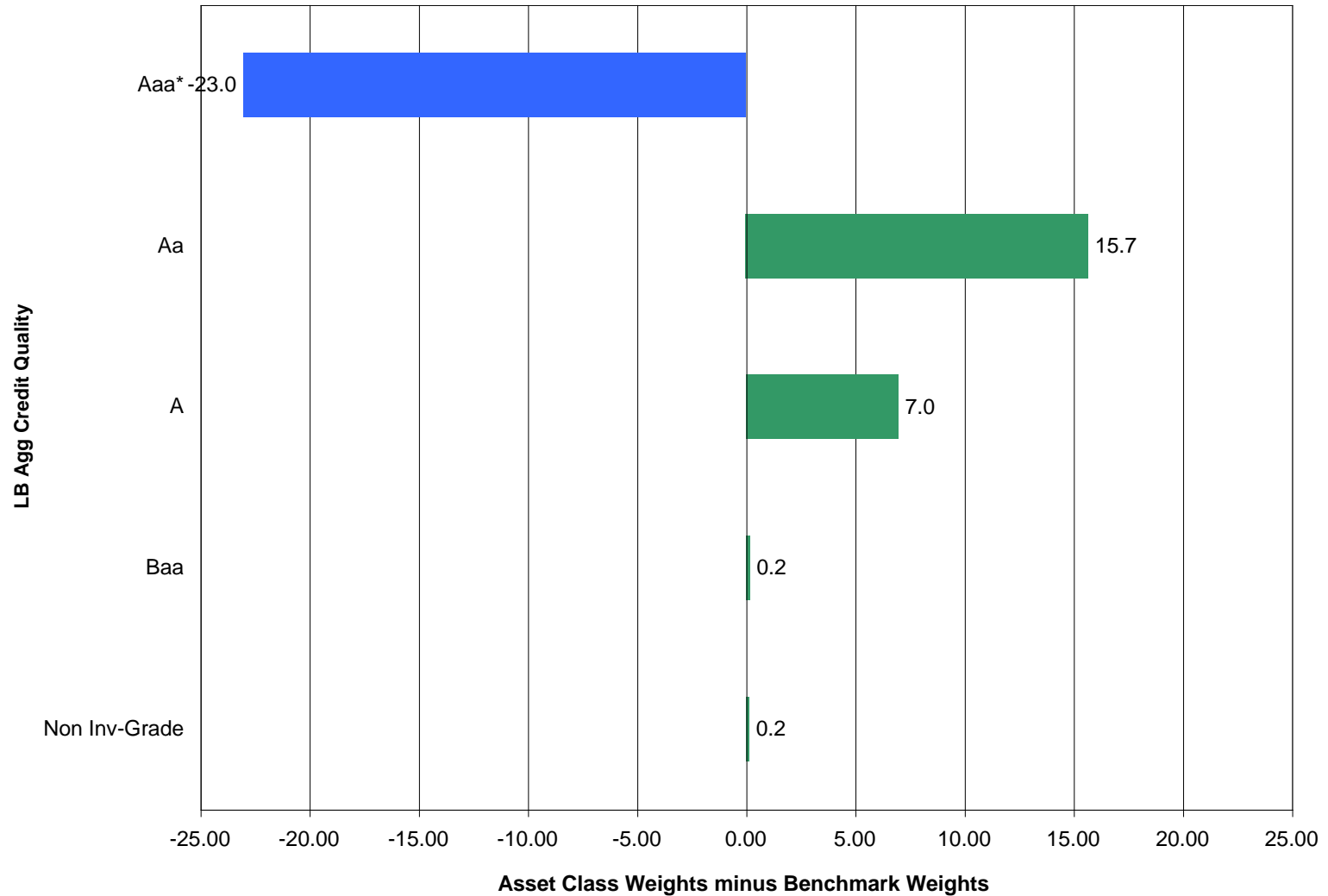


*Government includes Treasuries, Government Related, and Cash/Cash equivalents

Positions: Portfolio Analysis – Credit Quality

JP Morgan Intermediate Fixed

As of June 30, 2008

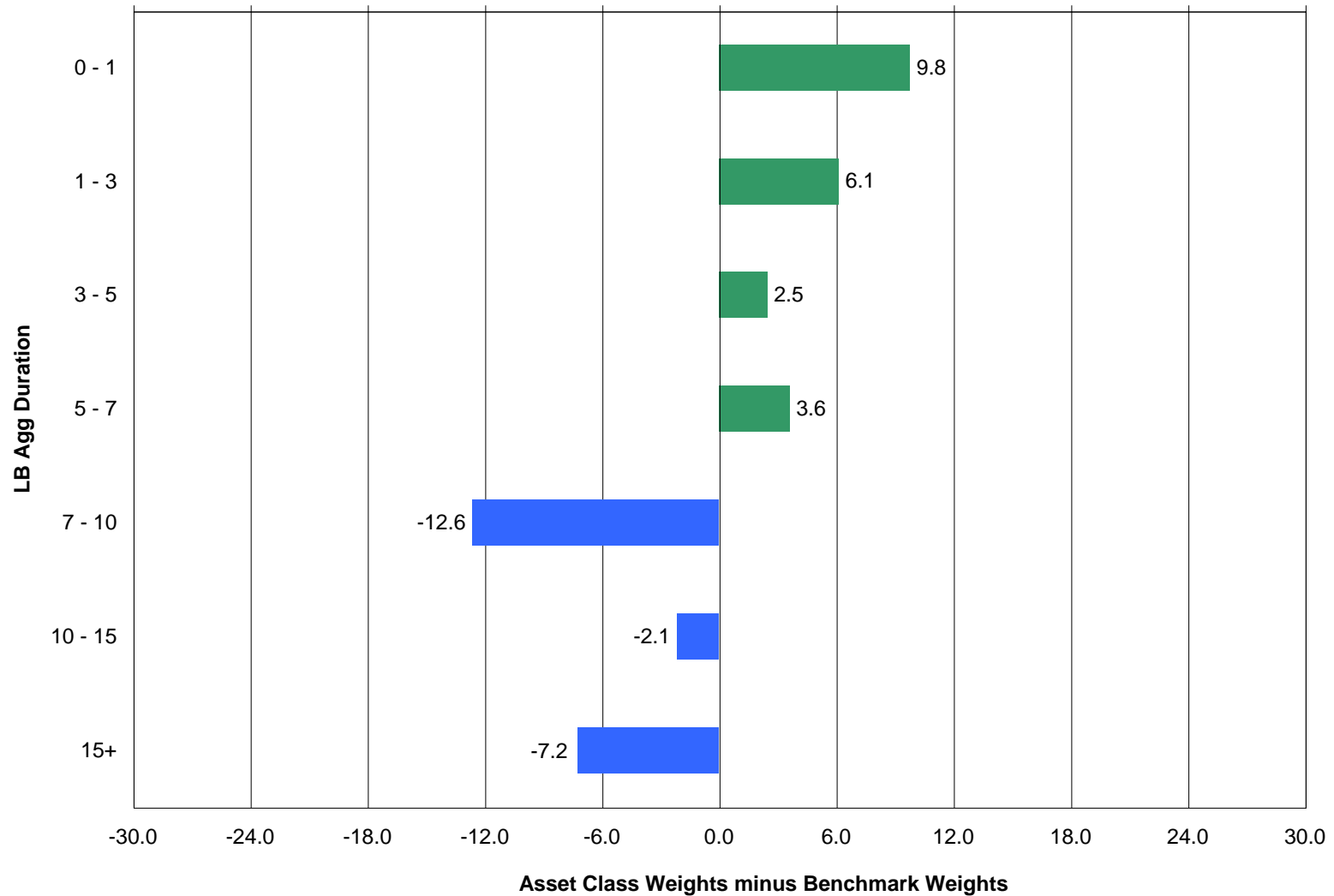


*Aaa includes Treasuries, Government Related, AAA Securitized Bonds, and Cash/Cash equivalents

Positions: Portfolio Analysis – Maturity Breakdown

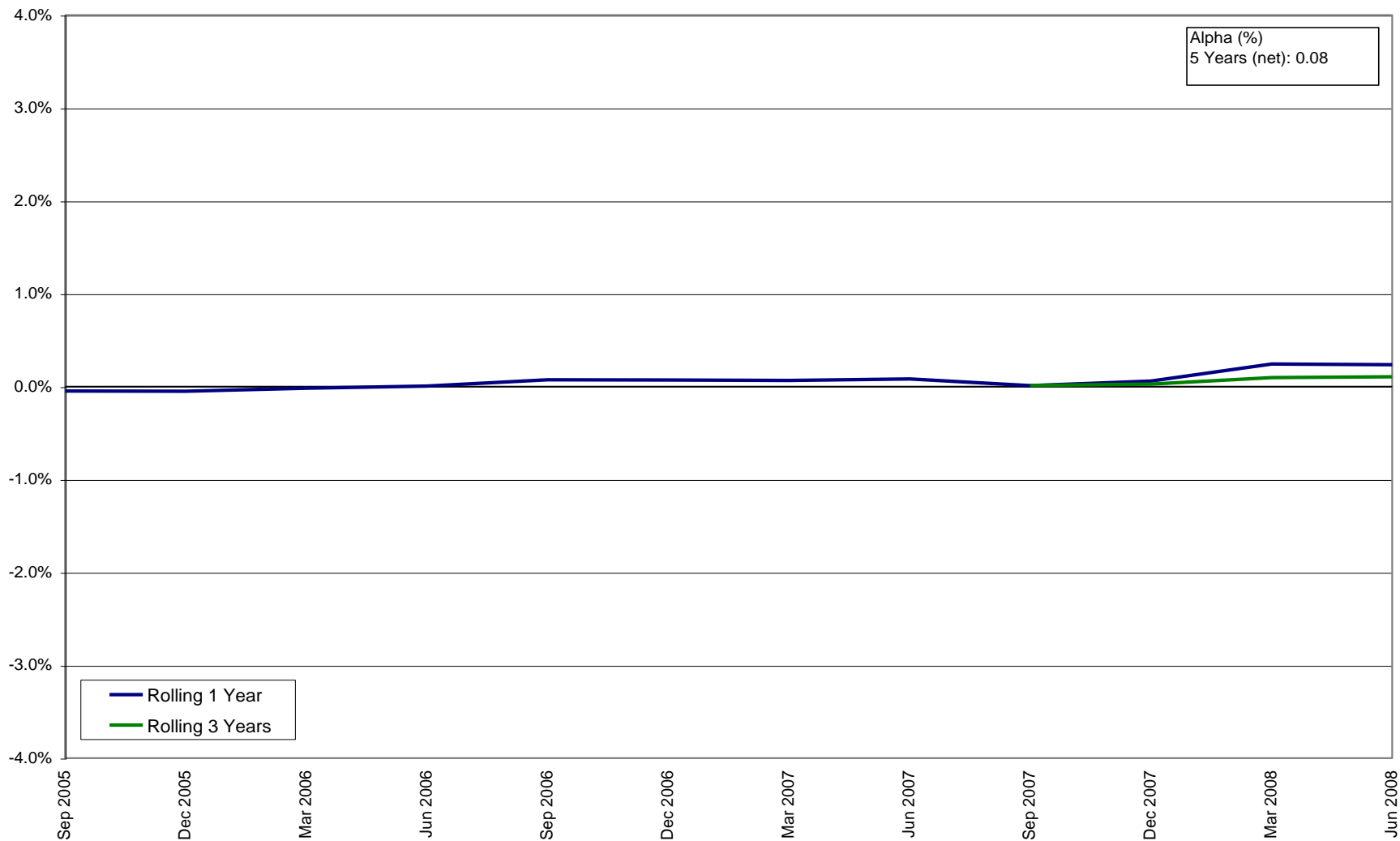
JP Morgan Intermediate Fixed

As of June 30, 2008



Performance: Alpha BGI

Since Inception Period Ending June 30, 2008

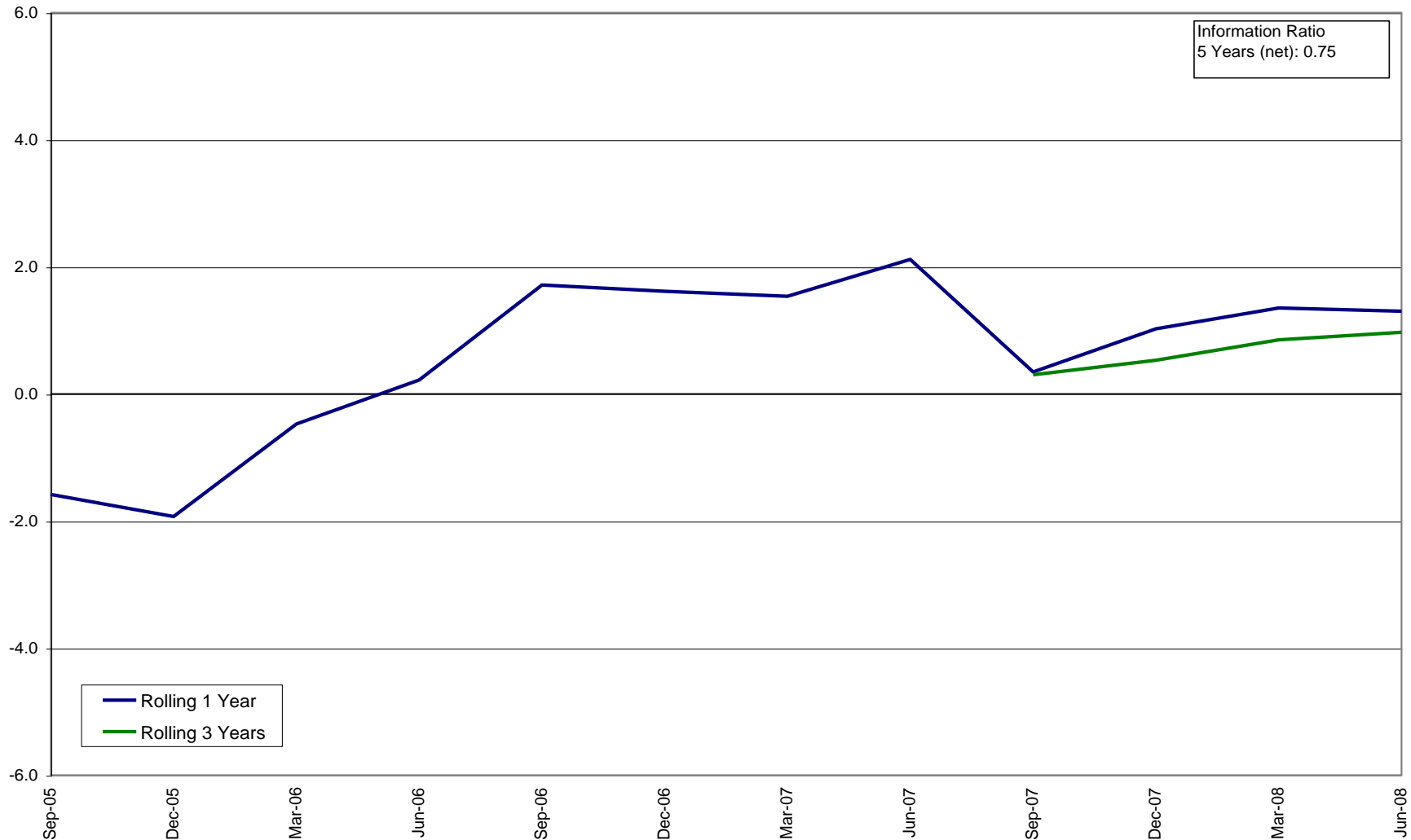


Calculated quarterly Inception date 09/08/2004

Performance: Information Ratio

BGI

Since Inception Period Ending June 30, 2008

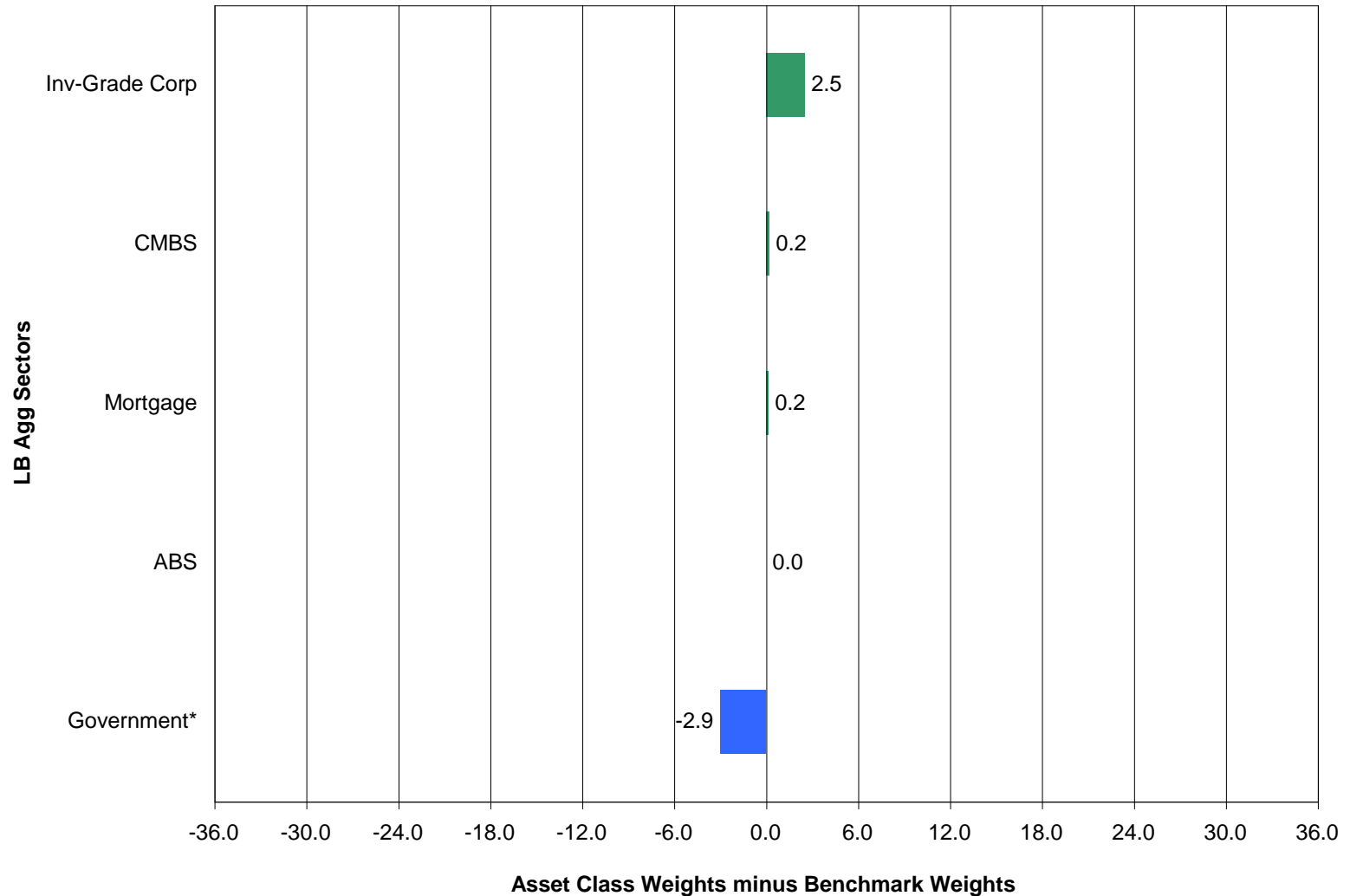


Calculated quarterly Inception date 09/08/2004

Positions: Portfolio Analysis – Sector Allocation

BGI

As of June 30, 2008

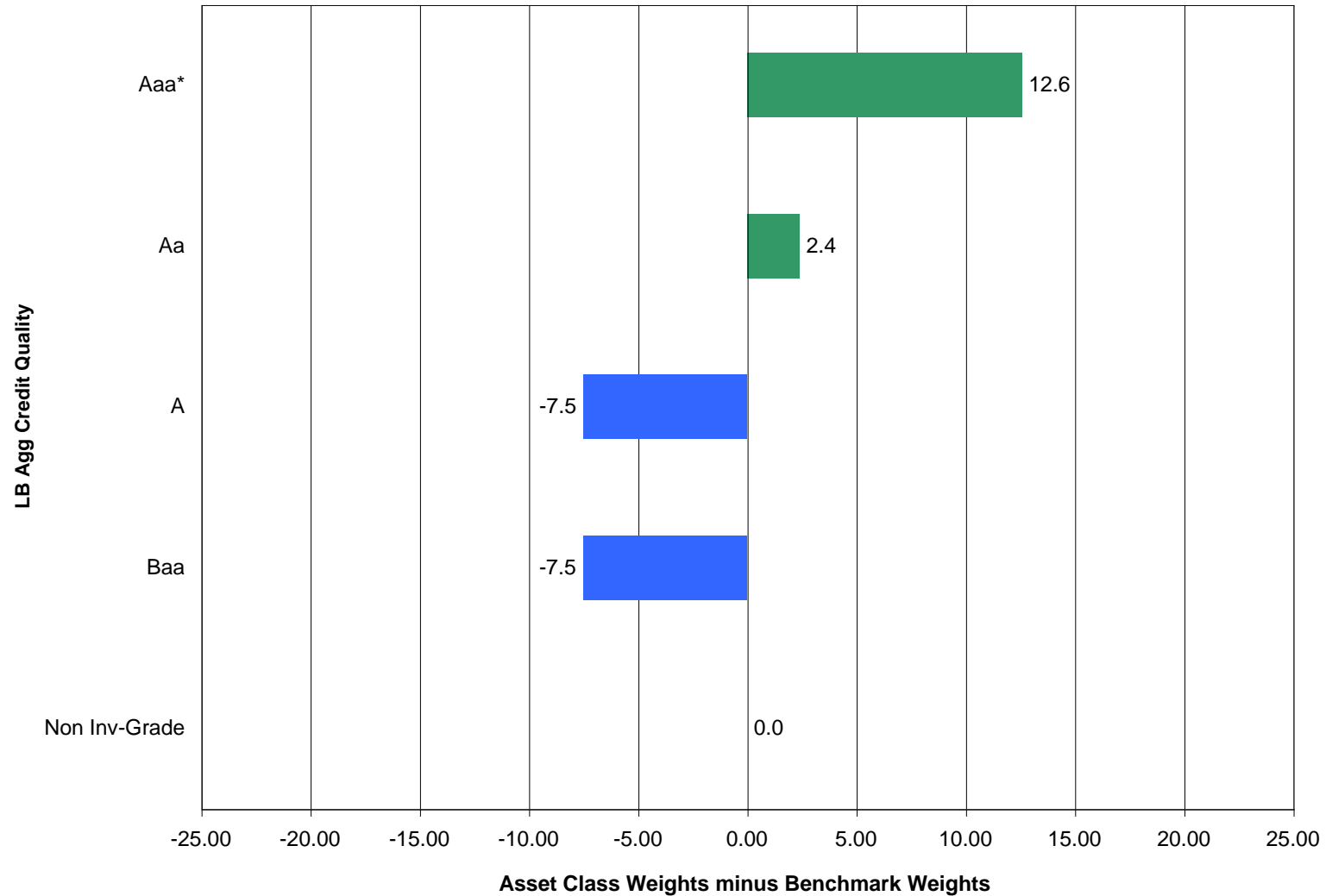


*Government includes Treasuries, Government Related, and Cash/Cash equivalents

Positions: Portfolio Analysis – Credit Quality

BGI

As of June 30, 2008

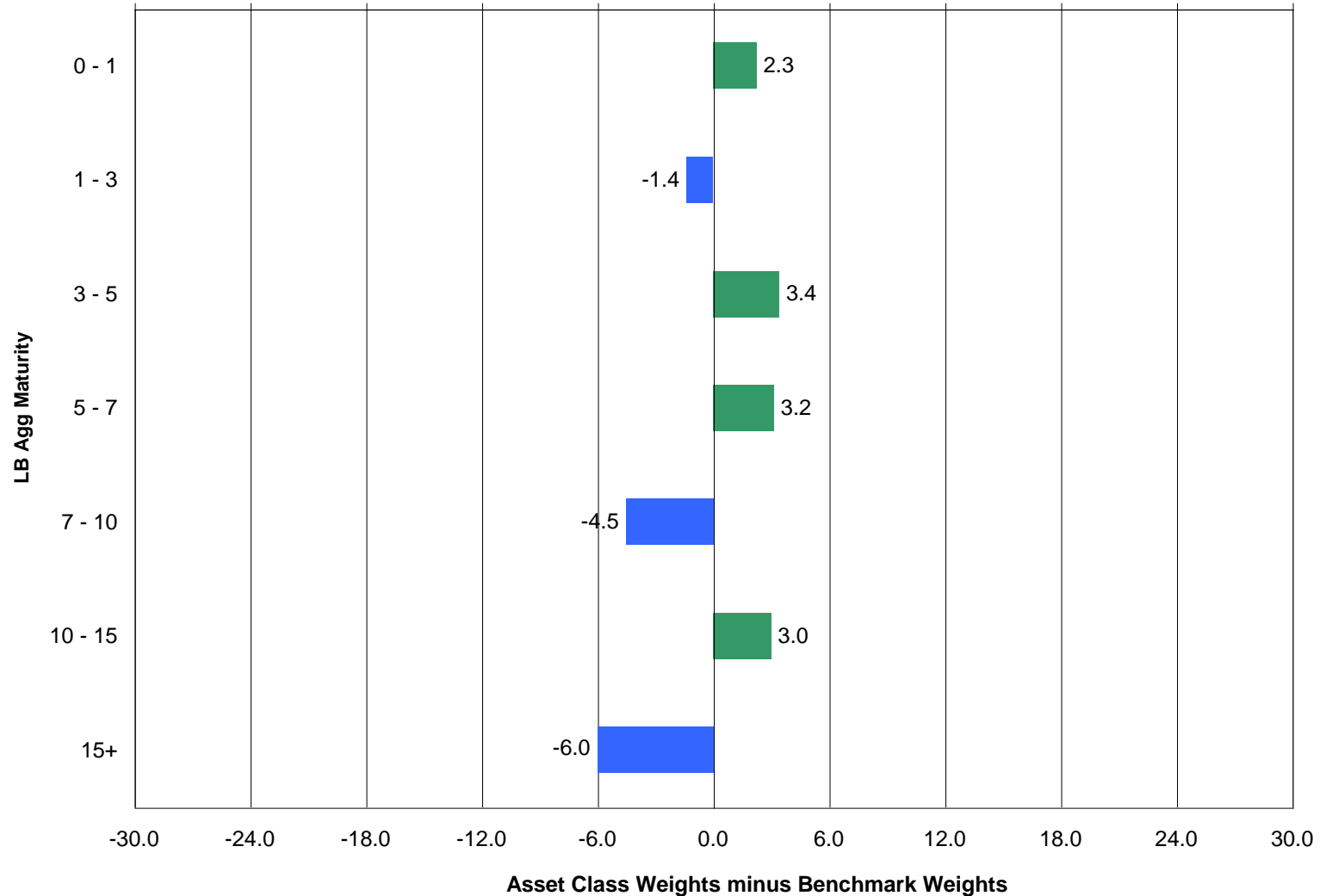


*Aaa includes Treasuries, Government Related, AAA Securitized Bonds, and Cash/Cash equivalents

Positions: Portfolio Analysis – Maturity Breakdown

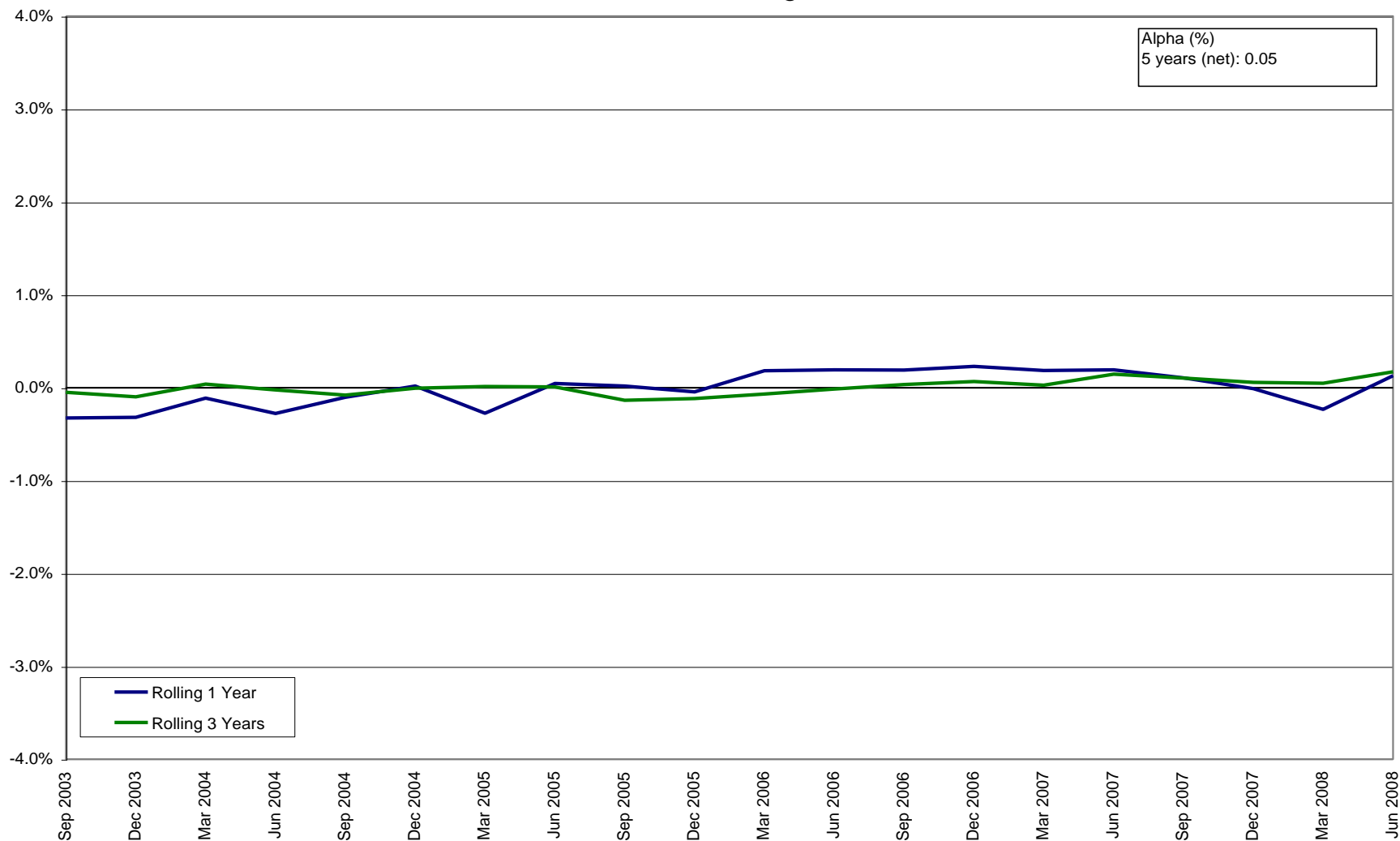
BGI

As of June 30, 2008



Performance: Alpha F2 Model

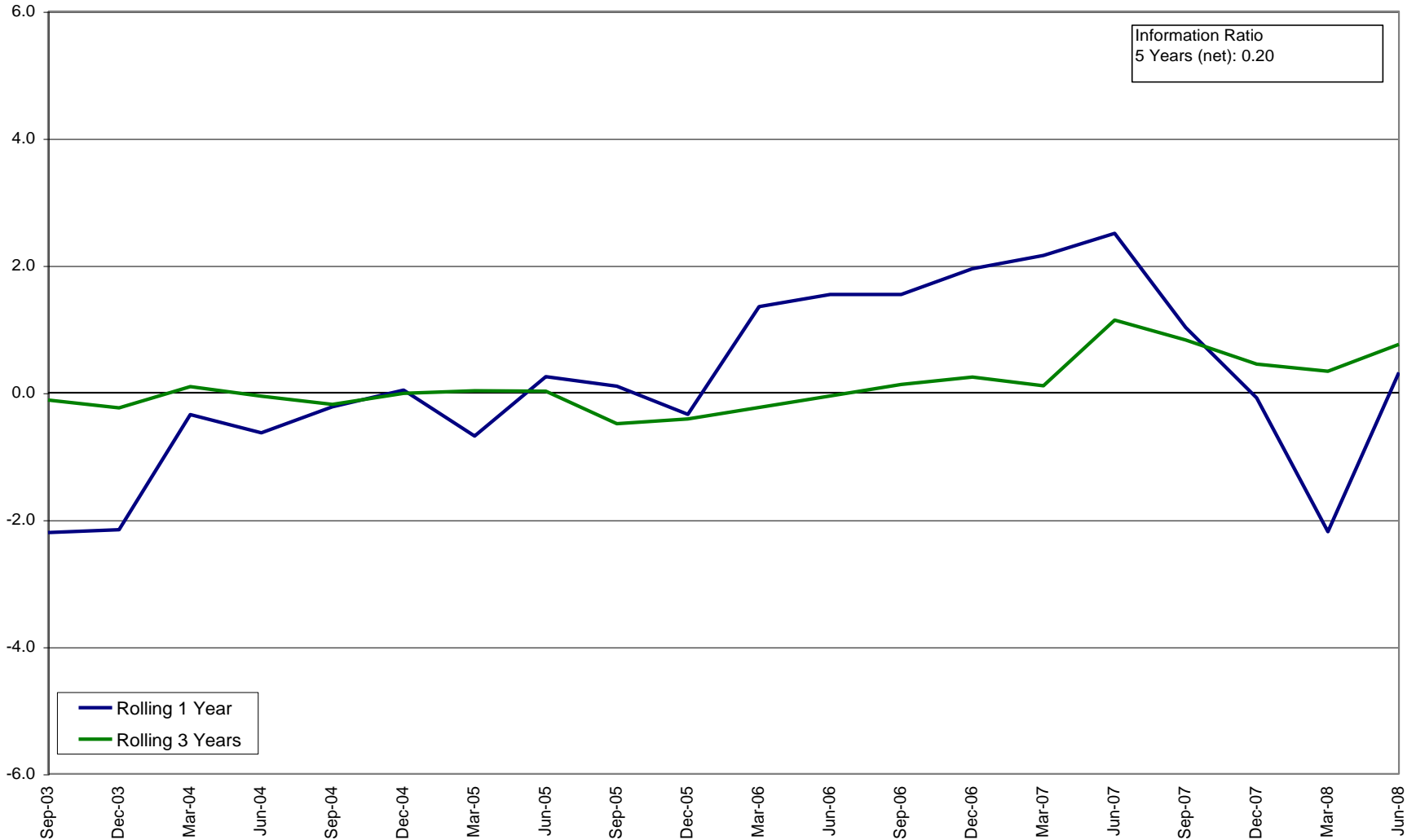
For the 5-Year Period Ending June 30, 2008



Calculated quarterly Inception date 09/30/2000

Performance: Information Ratio F2 Model

For the 5-Year Period Ending June 30, 2008

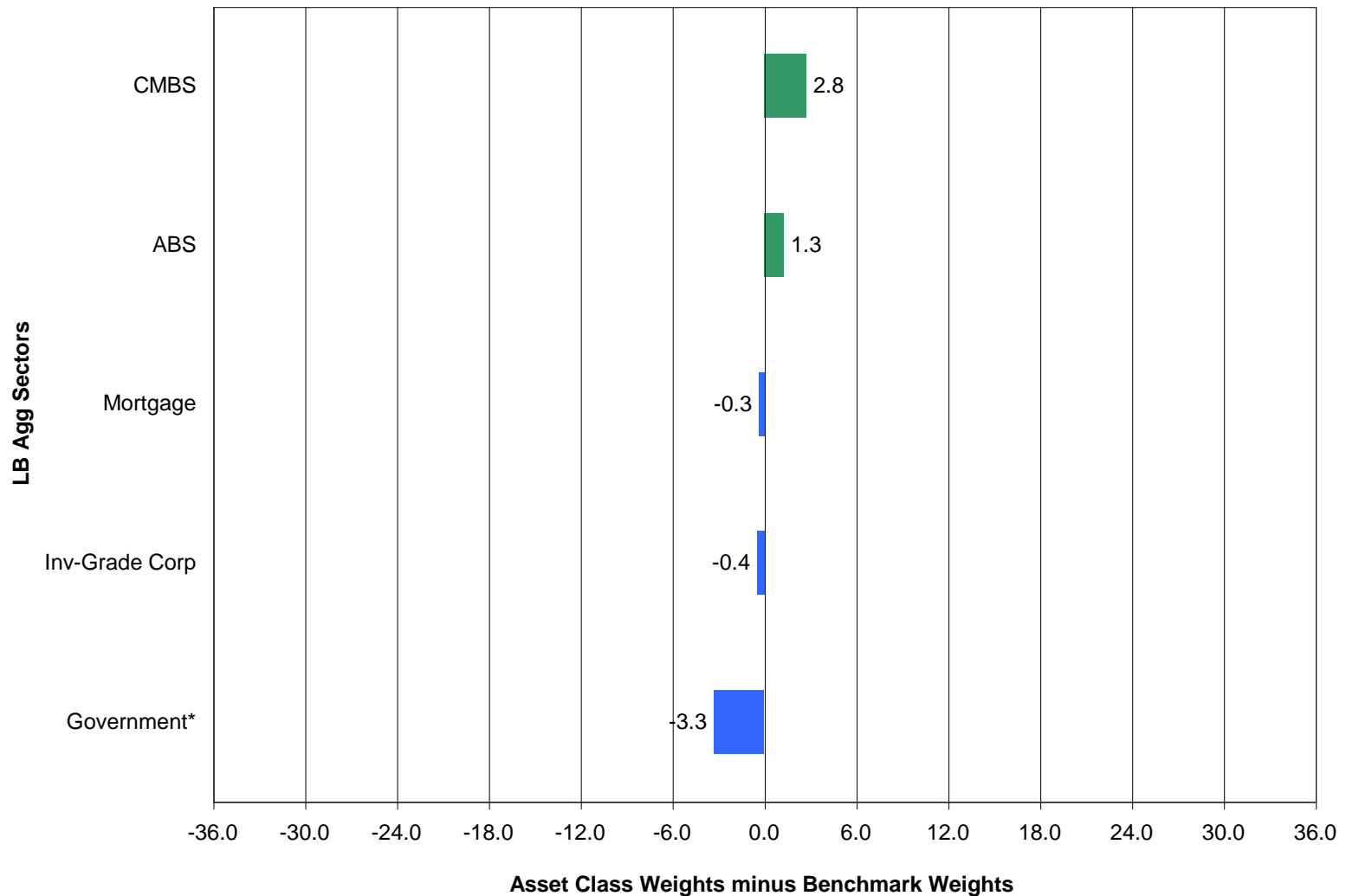


Calculated quarterly Inception date 09/30/2000

Positions: Portfolio Analysis – Sector Allocation

F2 Model

As of June 30, 2008

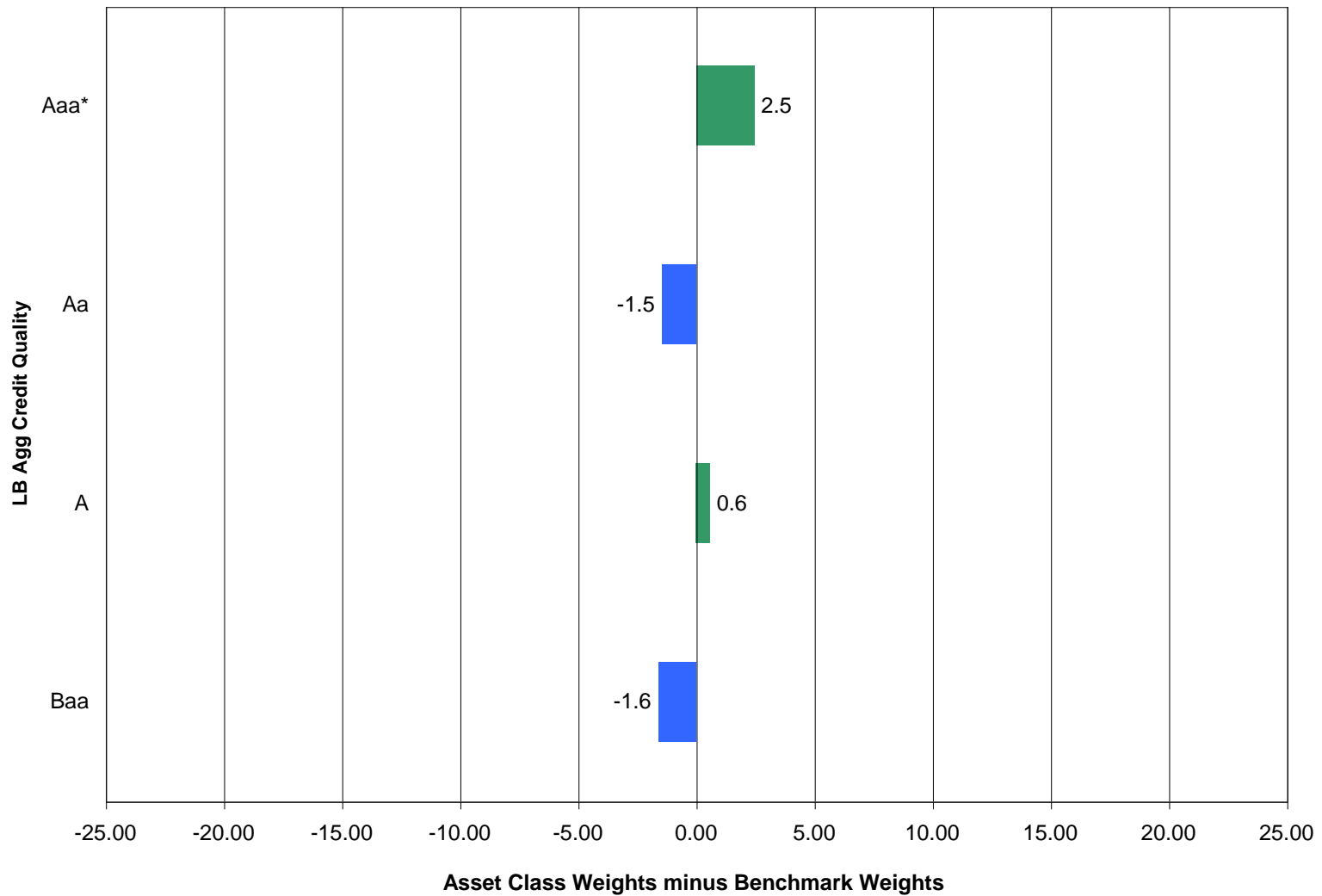


*Government includes Treasuries, Government Related, and Cash/Cash equivalents

Positions: Portfolio Analysis – Credit Quality

F2 Model

As of June 30, 2008

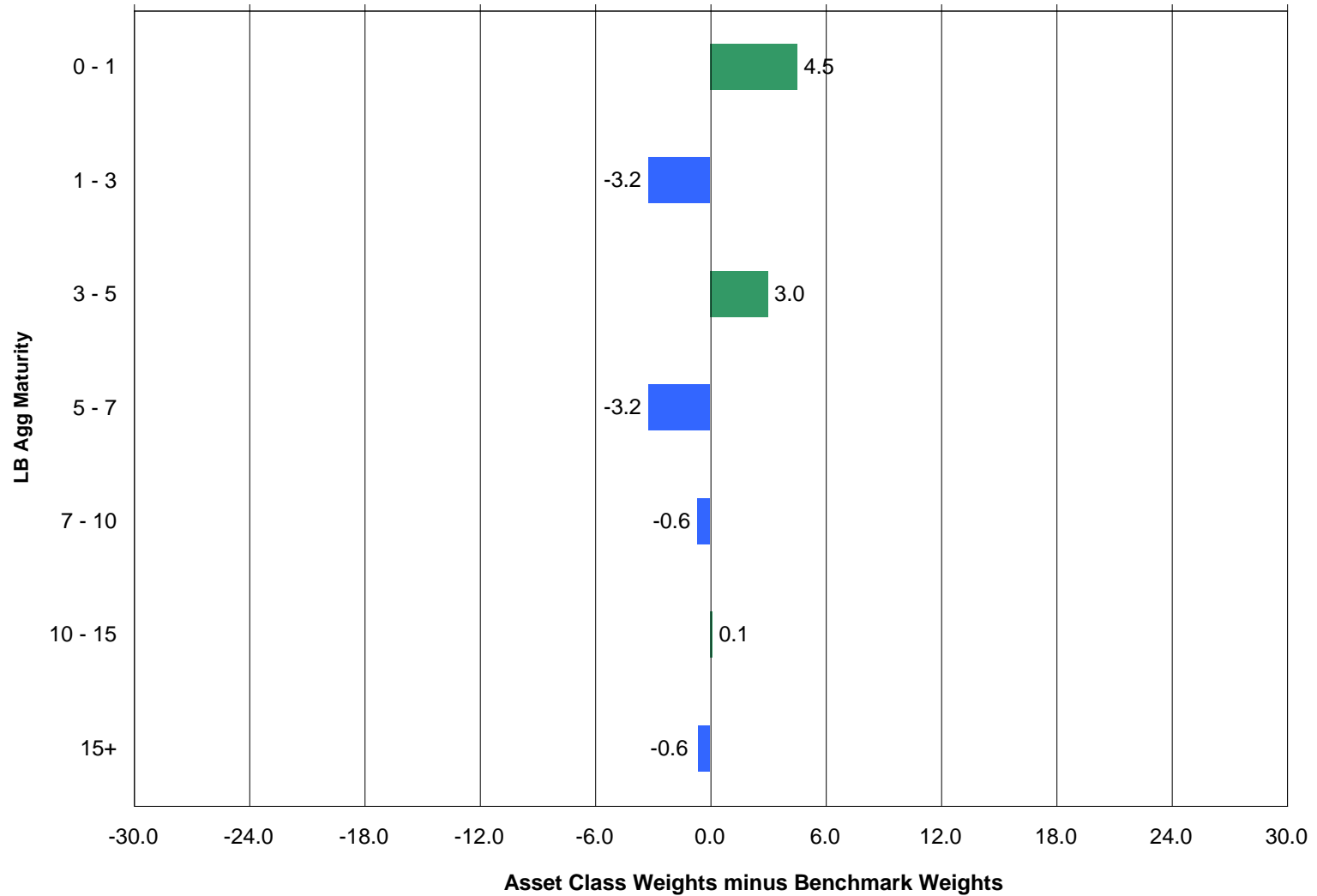


*Aaa includes Treasuries, Government Related, AAA Securitized Bonds, and Cash/Cash equivalents

Positions: Portfolio Analysis – Maturity Breakdown

F2 Model

As of June 30, 2008



NOTES

- **The information presented uses data provided by the individual managers as well as the reporting system at BNY Mellon Analytical Solutions, used by Mercer Investment Consulting**
 - Sector, Quality and Maturity breakdowns are provided by the respective manager.
 - These data are then combined using a weighted average to result in the Total Fixed Income Allocations